

MECHANIZED CAVALRY GROUPS: LESSONS FOR THE FUTURE OF RECONNAISSANCE AND SURVEILLANCE

A Monograph

by

Major E. Dave Wright
U.S. Army



School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas

2013-01

Approved for public release; distribution is unlimited.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.

1. REPORT DATE (DD-MM-YYYY) 23-05-2013	2. REPORT TYPE Master's Thesis	3. DATES COVERED (From - To) JUN 2012 – MAY 2013		
4. TITLE AND SUBTITLE Mechanized Cavalry Groups: Lessons for the Future of Reconnaissance and Surveillance		5a. CONTRACT NUMBER		
		5b. GRANT NUMBER		
		5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S) Maj E. Dave Wright		5d. PROJECT NUMBER		
		5e. TASK NUMBER		
		5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Command and General Staff College ATTN: ATZL-SWD-GD 100 Stimson Ave. Ft. Leavenworth, KS 66027-2301		8. PERFORMING ORGANIZATION REPORT NUMBER		
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSOR/MONITOR'S ACRONYM(S)		
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.				
13. SUPPLEMENTARY NOTES				
14. ABSTRACT After more than ten years of combat, the U.S. Army acknowledges the need to review its modern reconnaissance and security doctrine, specifically in regards to the lack of a dedicated element at the corps and division level. Recently efforts began to develop a new brigade-sized unit to address the void in reconnaissance and security at the operational level. While identifying approaches to correct these deficiencies, several similarities to the development and employment of mechanized cavalry are visible. Conducting an analysis of past-mechanized cavalry combat operations provides insight into the requirements necessary to reestablish a corps level reconnaissance and security organization. What did the U.S. Army, at the end of World War II, believe was essential to conduct effective reconnaissance and security operations?				
15. SUBJECT TERMS Reconnaissance, Security, Information Collection, Cavalry, Mechanized Cavalry Groups, Doctrine, Task Organization, Combined Arms, European Theater, World War II				
16. SECURITY CLASSIFICATION OF: a. REPORT Unclassified		17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES 63	19a. NAME OF RESPONSIBLE PERSON
b. ABSTRACT Unclassified				19b. TELEPHONE NUMBER (include area code)
c. THIS PAGE Unclassified				

MONOGRAPH APPROVAL PAGE

Name of Candidate: MAJ E. Dave Wright

Monograph Title: Mechanized Cavalry Groups: Lessons for the Future of Reconnaissance and Surveillance

Approved by:

_____, Monograph Director
Steven A. Bourque, Ph.D.

_____, Seminar Leader
Michael J. Lawson, COL

_____, Director, School of Advanced Military Studies
Thomas C. Graves, COL

Accepted this 23rd day of May 2013 by:

_____, Director, Graduate Degree Programs
Robert F. Baumann, Ph.D.

The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

MECHANIZED CAVALRY GROUPS: LESSONS FOR THE FUTURE OF RECONNAISSANCE AND SURVEILLANCE, by Major E. Dave Wright, 63 pages.

After more than ten years of combat, the U.S. Army acknowledges the need to review its modern reconnaissance and security doctrine, specifically in regards to the lack of a dedicated element at the corps and division level. With the transformation of the 3rd Cavalry Regiment from an armored cavalry regiment to a Stryker brigade combat team in fiscal year 2012, today's corps and division commanders lack such an organization. Serving as one of the final acts of the *2004 Army Transformation Roadmap*, this reorganization finalized the development of redundant modular units at the cost of versatile and proven specialized units. In doing so, it exchanged an increase in tactical reconnaissance and security organizations for a reliance on strategic and operational intelligence, security, and reconnaissance platforms. However, recently efforts began to develop a new brigade-sized unit to address the void in reconnaissance and security at the operational level. While identifying approaches to correct these deficiencies, several similarities to the development and employment of mechanized cavalry are visible. Current doctrine and organization share a commonality with early World War II era doctrine and organization based on stealthy reconnaissance and surveillance at the cost of combat capability. Furthermore, developing the specific aptitudes, experiences, and other human characteristics needed to provide a specific human dimension is inherently more problematic and requires an informed approach to solve.

Conducting an analysis of past-mechanized cavalry combat operations provides insight into the requirements necessary to reestablish a corps level reconnaissance and security organization. The General Board conducted this very intellectual exercise to determine the future mission, role, organization, and doctrine to shape the development of the post-World War II armored cavalry regiments. While the subjective nature of war has changed dramatically since World War II, the fact that the objective nature of war remains immutable provides sufficient rationale to reexamine not only the findings and recommendations of the European Board but also the very combat actions that provided substance for the findings. What did the U.S. Army, at the end of World War II, believe was essential to conduct effective reconnaissance and security operations?

TABLE OF CONTENTS

	Page
ILLUSTRATIONS	v
INTRODUCTION	1
DOCTRINE	8
ORGANIZATION: THE NEED FOR A COMBINED ARMS TEAM	25
INTELLECTUAL FRAMEWORK	41
CONCLUSION	51

ILLUSTRATIONS

	Page
Figure 1. Armored Reconnaissance Battalion – 1942	31
Figure 2. Cavalry Reconnaissance Squadron – 1943	33

“The mission of cavalry is to ‘fight’... Any teachings that limit the combat activities of cavalry to reconnaissance only are far removed from experience and actuality and as such are misleading sufficiently to become dangerous doctrine to the young cavalry officer.”

—Lt Col Charles J. Hodge, *The General Board No.49*

INTRODUCTION

In the half-light of the desert morning, the reconnaissance battalion commander stared intently at his radio as if wishing it would provide insight into the intent and location of the enemy. Rubbing his wind worn and sunburned hands through his hair, he used the unwanted silence to reflect on the past few months of combat. Utilizing stealth and mobility, his battalion had avoided contact unless absolutely required; lightly armed and highly mobile, his soldiers attempted to provide division and subordinate commanders the time and space to maneuver their forces to victory. However, his battalion, companies, and platoons lacked the firepower and protection to penetrate the enemy’s counter reconnaissance efforts, much less ascertain the enemy’s efforts. In the face of effective anti-tank gun and artillery fire, extrication of his reconnaissance soldiers had often required herculean efforts to prevent their complete destruction. As a result, his forces were often detached as orphans, scattered across the battlefield, and tasked to secure high ground and artillery formations or over watch minefields. On the few occasions they still operated as a battalion, they became more of a spread-out reaction force rather than serving as the ‘eyes and ears’ of the division commander.¹ In light of his reflections and previous conflicting reports on enemy activity to the division’s front, his concern for his men grew. Now as the sun broke through the rugged terrain marking the horizon, bringing a new day into focus, his radio came alive with reports of massed armored formations approaching his companies.

¹George F. Hoffman, *Through Mobility We Conquer: The Mechanization of the U.S. Cavalry* (Lexington, KY: The University Press of Kentucky, 2006), Chapter 3.

Springing into action, he instinctively knew that a disaster was in the making. Widely separated, insufficiently armed to defeat the enemy's armor, and lacking adequate protection, his reconnaissance battalion would fail to provide time for the division to prepare for the massed armored columns descending on it.²

Little more than two years later, the same cavalryman stood before a series of maps depicting the location of his units on a worn and battered table that until only recently had served as his make-shift bed. Now the commander of a cavalry group, tasked to conduct reconnaissance forward of the entire corps his unit would determine the location of the enemy's main defensive belt. Straightening his disheveled uniform as he examined the plan for the upcoming mission, he noticed the pre-dawn light softly lit the table through a battle-scarred wall, evidence of a recent battle. Combined with the faint sounds of radio traffic in the background, a faint sense of *déjà vu* fell over him. He thought back to the deserts of North Africa and the differences focused sharply in his mind. His units arrayed across a twenty-five mile front were better armed and trained than two years ago. With two combat engineer battalions operating as infantry, four battalions of artillery providing supporting fires, and three armor companies attached to him, he knew that he had the advantage this morning. Retrieving his rifle and helmet from a chair next to the table, the commander proceeded to leave the building while considering words of advice to give the junior

²This portion serves as an amalgamation of reconnaissance operations by the 81st Armored Reconnaissance Battalion and other division and below reconnaissance organizations during operations in northwest Africa see George F. Hoffman, *Through Mobility We Conquer*; George F. Howe, *Northwest Africa: Seizing the Initiative in the West* (Washington D.C.: Center of Military History, 1993); U.S. Army Center of Military History, "Kasserine Pass Battles: Staff Ride Background Materials, <http://www.history.army.mil/books/Staff-Rides/kasserine/kasserine.htm> [accessed March 15, 2013]; Cavalry School, *Cavalry Reconnaissance Number One: Operations of the 81st Armored Reconnaissance Battalion in Tunisia* (Fort Riley, Kansas: Cavalry School, 1943); and Cavalry School, *Cavalry Reconnaissance Number Seven: Operations of a Reconnaissance Company in Tunisia* (Fort Riley, Kansas: Cavalry School, 1943).

leaders he would see today. In many ways, this maneuverable and well-armed unit was not that much different from the cavalry units he served in as a young lieutenant and captain and he knew that sharing his experience would benefit the current crop of young leaders. Confident, yet cautious, he did not realize how successful his unit would be. Over the next ten days, his cavalry group would drive 125 miles through the enemy lines. During this time, they defeated the enemy security elements, attacked to seize key objectives, and penetrated the enemy's forward defenses. As the corps moved forward to begin its attack, a clear and detailed picture emerged of the enemy's defenses and intent. At the same time, his group's mission transitioned to protecting the right flank of the corps. While maintaining contact with the corps main body, the cavalry group defeated repeated attacks by German armored columns seeking to penetrate the corps' flank. In the end the cavalry group, augmented with additional combat and combat support elements operated over a 250-mile front as an independent combat formation and conducted reconnaissance, security, offensive, and defensive operations.³

The cavalry conducted two primary missions during World War II while undergoing intensive change and adaptation in doctrine and organization. In 1941, while operating in North Africa, the cavalry was specialized in order to execute reconnaissance, operations to collect essential elements of information needed by a commander to make a sound decision, exclusively, with an emphasis on stealth and avoiding combat.⁴ However, the doctrine failed to withstand the

³This example is an amalgamation of actual operations conducted by the 4th and 11th Cavalry Groups (mechanized) for further reading see: U.S. Forces, European Theater, "The General Board, Study No. 49: Tactics, Employment, Technique, Organization, and Equipment of Mechanized Cavalry Units", Appendix 6, 1945 (Hereafter cited as U.S. Forces, European Theater Study No. 49); George L. Haynes Jr and James C. Williams, *The Eleventh Cavalry From the Roer to the Elbe, 1944-1945* (Erlangen, Germany: 11th Cavalry Group, 1945); and George F. Hoffman, *Through Mobility We Conquer*.

⁴War Department, Field Service Regulations Field Manual 100-5: *Operations* (Washington D.C.: Government Printing Office, 1941), 42.

reality of war. Unable to avoid combat, cavalry organizations evolved into independent, highly mobile, and heavily armed combat forces. At the end of the war, the organization entailed a combination of light reconnaissance elements, light tanks, and self-propelled assault guns centered on a lean headquarters capable of absorbing additional units. More dramatic, the cavalry's doctrine evolved to add security, operations to protect a force against surprise attack and observation by hostile air and ground force, and to retain freedom of maneuver for the commander by gaining the time and space required to array forces.⁵ It also recognized that offensive and defensive operations enabled reconnaissance and security.⁶ Operating within a commonality of experience and fundamentals gained through training and doctrine, the thirteen mechanized cavalry groups provided corps and division commanders an unmatched combat potential. When properly organized they operated independently with minimal support, guided only by a mission statement and commander's intent. What the cavalry groups enable us to see is an organization capable of conducting a multitude of missions, cognizant of how to fight with a wide range of capabilities while providing the commander with essential information.

The mechanized cavalry units of World War II serve as a constant source of inspiration for professional writings. At the end of the war the Army convened teams, called the General Boards, to examine Army operations. General Board Report Study Number 49, "Mechanized Cavalry Units" published in 1945 produced a factual analysis of the strategy, tactics, and administration employed by the cavalry in the European Theater. The authors of Study Number 49 used interviews and after action reports to examine in detail the tactical employment,

⁵Ibid., 48.

⁶John J. McGrath, *Scouts Out! The Development of Reconnaissance Units in Modern Armies* (Fort Leavenworth, KS: Combat Studies Institute Press, 2008), 98-99. It is important to note that this is in direct opposition of current doctrine in which reconnaissance and security are solely classified as enabler operations.

techniques, organization, and equipment of mechanized cavalry units.⁷ Since then, authors, historians, and military officers have reexamined the mechanized cavalry. John K. Herr and Edward S. Wallace's *The Story of the U.S. Cavalry: 1775 – 1942*, Robert S. Cameron's *Mobility, Shock, and Firepower: The Emergence of the U.S. Army's Armor Branch, 1917 - 1945*, and George F. Hofmann's *Through Mobility We Conquer: The Mechanization of U.S. Cavalry* are three of the authoritative works on the doctrinal and organizational development of the European Theater cavalry groups.⁸ Military officers searching for applicable insight into contemporary and future reconnaissance and security operations have also contributed to the wealth of material available. Louis DiMarco's "U.S. Army's Mechanized Cavalry Doctrine in World War II", Matthew D. Morton's "Men on "Iron Ponies": The Death and Rebirth of the Modern U.S. Cavalry", Christopher N. Prigge's "Exploiting Combat Experience: The U.S. Forces European Theater Study of Mechanized Cavalry Units" and Dean Nowojejski's "Adaption to Change: U.S. Army Cavalry Doctrine and Mechanization: 1938-1945" are but a few examples of the theses and monographs that examine mechanized cavalry operations.⁹

After more than ten years of combat, the U.S. Army acknowledges the need to review its modern reconnaissance and security doctrine, specifically in regards to the lack of a dedicated

⁷U.S. Forces, European Theater Study No. 49.

⁸John K. Herr and Edward S. Wallace, *The Story of the U.S. Cavalry: 1775 – 1942* (Boston: Little, Brown, and Company, 1953); Robert S. Cameron, *Mobility, Shock, and Firepower: The Emergence of the U.S. Army's Armor Branch, 1917 -1945* (Washington D.C.: Center of Military History, 2008); and George F. Hofmann, *Through Mobility We Conquer*.

⁹Louis A DiMarco, "U.S. Army's Mechanized Cavalry Doctrine in World War II" (master's thesis, Command and General Staff College, 1995); Matthew D. Morton, "Men on "Iron Ponies": The Death and Rebirth of the Modern U.S. Cavalry" (master's thesis, Florida State University, 2004); Christopher N. Prigge "Exploiting Combat Experience: The U.S. Forces European Theater Study of Mechanized Cavalry Units" (master's monograph, School of Advanced Military Studies, 2011); and Dean Nowojejski, "Adaptation to Change: U.S. Army Cavalry Doctrine and Mechanization" (master's monograph, School of Advanced Military Studies, 1995).

element at the corps and division level.¹⁰ With the transformation of the 3rd Cavalry Regiment from an armored cavalry regiment to a Stryker brigade combat team in fiscal year 2012, today's corps and division commanders lack such an organization.¹¹ Serving as one of the final acts of the *2004 Army Transformation Roadmap*, this reorganization finalized the development of redundant modular units at the cost of versatile and proven specialized units.¹² In doing so, it exchanged an increase in tactical reconnaissance and security organizations for a reliance on strategic and operational intelligence, security, and reconnaissance platforms. However, recently efforts began to develop a new brigade-sized unit to address the void in reconnaissance and security at the operational level.¹³ While identifying approaches to correct these deficiencies, several similarities to the development and employment of mechanized cavalry are visible. Current doctrine and organization share a commonality with early World War II era doctrine and organization based on stealthy reconnaissance and surveillance at the cost of combat capability. Furthermore, developing the specific aptitudes, experiences, and other human characteristics needed to provide a specific human dimension is inherently more problematic and requires an informed approach to solve.¹⁴

¹⁰Andrew Fowler, interview by author, Leavenworth, KS, November 28, 2012.

¹¹Gina Cavallaro and Kris Osborn, "Army to Switch Two Heavy Brigades to Strykers," *Army Times*, October 3, 2009.

¹²Department of the Army, *2004 Army Transformation Road Map*, at the Defense Technical Information Center, http://www.dtic.mil/futurejointwarfare/strategic/army_trans_roadmap.pdf (accessed October 28, 2012).

¹³Andrew Fowler, interview by author.

¹⁴Department of the Army, *How the Army Runs: A Senior Leader Reference Handbook, 2011-2012* (Carlisle, PA: U.S. Army War College, 2011), 262.

Conducting an analysis of past-mechanized cavalry combat operations provides insight into the requirements necessary to reestablish a corps level reconnaissance and security organization. The General Board conducted this very intellectual exercise to determine the future mission, role, organization, and doctrine to shape the development of the post-World War II armored cavalry regiments. While the subjective nature of war has changed dramatically since World War II, the fact that the objective nature of war remains immutable provides sufficient rationale to reexamine not only the findings and recommendations of the European Board but also the very combat actions that provided substance for the findings. What did the U.S. Army, at the end of World War II, believe was essential to conduct effective reconnaissance and security operations?

First, despite its successful combat record the General Board identified extensive flaws in the organization and equipment utilized by the mechanized cavalry.¹⁵ The ineffectiveness of light weapon systems against prepared defenses and enemy armor combined with limited dismounted capability to hinder the effectiveness of the cavalry groups. Second, the adaptability and flexibility of the cavalry, attributed to the modularity of the cavalry group headquarters to receive reinforcing units, but these characteristics are effects of a process whose root cause remained unrecognized by the board.¹⁶ Commanders of the mechanized cavalry and small cadre's of junior officers and non-commissioned officers were more often than not lifetime cavalrymen, but that answer fails to withstand the draftee army manning and replacement plans. In the end, they learned that clear and precise doctrine, a robust combined arms team, and cavalry 'troopers' that posses the intellectual framework to conduct reconnaissance and security operations.

¹⁵U.S. Forces, European Theater Study No. 49, 12.

¹⁶Ibid., 10-11.

DOCTRINE

Squinting by the harsh light of the bare light bulb above his desk, the young officer read intently from the book before him. Matching the small mountain of books unopened on the desk, this manual held his attention. It was not a great literary work or composed of imaginative prose. If anything, it was dry and required the utmost force of will to maintain his concentration. Soon he would depart for war and this made it the most important literary work ever. This newly printed document held within it three critical things. First, the vocabulary inside would enable him to clearly and succinctly communicate with his superiors, peers, and subordinates alike in the chaos of war. It was a common language, yet one distinct for a craft so terrible. Second, between the one in his hands and the others piled almost reverently, it related the theory and practice of employing forces in a deathly struggle. He hoped that by imbibing the knowledge within he could if not win at least not lose. Finally, he hoped that these writings, crafted by intelligent and experienced men tempered in training and test, would enable him to understand war. To truly grasp it, recognize its ebbs and flows, and intuitively adapt his forces to the challenges ahead. As a clock far off chimed the late hour, he carefully bent a page to mark his place. He would stop for the evening and allow his brain to catalog and arrange the words he read into lasting memories and lines of thought. Time was running out before he left, but this doctrine would prepare him.

In the years leading up to the end of World War II, cavalry doctrine swung between extremes similar to a great pendulum. Mechanization, the decisive force driving changes in the 1930s, drove the cavalry to evolve its horse-mounted combat formations. Determined to retain the adaptability of the horse, cavalrymen saw mechanization initially as a means to augment the existing all-purpose, mobile, combat force known as the cavalry. Further pre-war evolution would

result in a drastic change to a doctrinally specialized force dedicated to reconnaissance.¹⁷ The realities of combat in North Africa would highlight the shortcomings of a dedicated reconnaissance focus and the failures of a stealthy reconnaissance.¹⁸ However, the limited scope of early action in North Africa failed to recognize all of the shortfalls of mechanized cavalry theory. Despite adjustments, mechanized cavalry operations in Northwest Europe would continue to identify further intellectual faults. Despite its intended focus, the mechanized cavalry conducted a much more traditional cavalry role than just the reconnaissance operations. In fact, reconnaissance operations would account for only 4% of all cavalry missions in the European Theater of Operations. As a result post-war review would recommend a complete revision of cavalry doctrine that would once again create an all purpose, mobile combat force.¹⁹ More importantly, they would strive for a clear, precise modern doctrine nested in previous doctrine and tested in combat during the war.

During the inter-war years, the cavalry served as one of the chief proponents of mechanization. At the urging of the Chief of Staff General Charles P. Summerall, Congress authorized the creation of the Mechanized Force (Experimental) as a test unit consisting of elements of nine combat and service arms. He tasked it with temporarily creating a mechanized force to study tactics and techniques while serving as a vehicle to test equipment.²⁰ Within this organization, Troop A, 2d Armored Car Squadron served as the precursor for all armored reconnaissance organizations to follow, organized with reconnaissance operations as its sole

¹⁷Robert S. Cameron, *Mobility, Shock, and Firepower*, 49-56.

¹⁸Louis A. DiMarco, “U.S. Army’s Mechanized Cavalry Doctrine in World War II,” 1.

¹⁹U.S. Forces, European Theater Study No. 49, 20-21,

²⁰Robert S. Cameron, *Mobility, Shock, and Firepower*, 41.

role.²¹ Despite these humble beginnings, mechanized cavalry would be at the forefront of mechanized innovation over the next ten years and in large part, lead directly to the creation of the American armored and mechanized divisions. However, the cavalry did not universally accept mechanization and as a result, it would fall from its position as a key leader in mechanization and full-fledged combat branch to a minor enabling combat role by the start of World War II.²² What caused this proverbial fall from grace? First, the inter-war doctrine published by the War Department was quickly outdated, conflicting, and largely ignored by the various branches. Second, the doctrine suffered from a disabling bifurcation created by the desire to retain the cavalrymen's noble companion, the horse. Third, doctrine writers developed inter-war doctrine based on experience viewed through a biased lens.

Following World War I, the War Department conducted a detailed review of the war and updated its doctrine based on its experiences and those of its allies. The result of this study was the 1923 *Field Service Regulations*, which served as the official guide for the employment of the Army as a combined arms force until 1941. It focused on offensive operations and the avoidance of static warfare, with success incumbent on all branches and arms supporting one another in search of the desired end.²³ In terms of reconnaissance, divisions and corps centralized cavalry in conjunction with aerial reconnaissance and augmented by supporting arms, chiefly infantry, in

²¹Louis A. DiMarco, "U.S. Army's Mechanized Cavalry Doctrine in World War II," 7.

²²For detailed evolution of the mechanized cavalry see Robert S. Cameron, *Mobility, Shock, and Firepower*; George F. Hofmann, *Through Mobility We Conquer*; Louis A DiMarco, "U.S. Army's Mechanized Cavalry Doctrine in World War II"; and Matthew D. Morton, "Men on "Iron Ponies".

²³War Department, *Field Service Regulations, 1923* (Washington D.C.: Government Printing Office, 1924), iv.

order to fight for the necessary information in support.²⁴ While operating under different principals, security operations, primarily conducted by cavalry, required the employment of a reconnaissance element and supporting arms per the manual.²⁵

In 1930, the War Department created a doctrinal tension with the publication of *A Manual for Commanders of Large Units (Provisional)* to supplement perceived insufficiencies in the 1923 *Field Service Regulations*.²⁶ Intended to provide an operational approach for armies, corps, and divisions the publication's vision differed sharply from the manual it sought to augment. Instead of avoiding static warfare, it envisioned only occasional systematic offensive movement within an overall defensive paradigm.²⁷ It further envisioned corps commanders detaching their cavalry units to division level to conduct reconnaissance in contrast to centralization. Cavalry would identify the location of enemy defenses and then transfer the reconnaissance mission to infantry advanced guards who determined the composition and disposition of the enemy through combat.²⁸ Security was the one place that both doctrinal works agreed. Despite the incongruities, the 1923 *Field Service Regulations* and *A Manual of Commanders of Large Units (Provisional)* provided the intellectual core of the Army. However,

²⁴Ibid., 17-19 and 32-40.

²⁵Ibid., 17-19, 38, 41-48, and 52-55 and War Department, *A Manual for Commanders of Large Units (Provisional)* (Washington D.C.: Government Printing Office, 1930), 32, 59, and 62.

²⁶War Department, *A Manual for Commanders of Large Units*.

²⁷Ibid., 10. Additional incongruities applied to how cavalry was expected to operate in operations. For example, the *Field Service Regulation* expected cavalry to progress until arrested by strong enemy elements and then locate flanks. *A Manual for Large Units (Provisional)* in turn called for cavalry to determine the general outline of the enemy and then allow advanced guards to more strongly establish contact.

²⁸Ibid., 32-35.

emerging technology and concepts in the form of mechanization made the documents obsolete by the mid-1930s.²⁹

The War Department attempted to address these two factors, obsolescence, and disjointedness, with the publication of a new field service regulation in 1939. This attempt failed due to a lack of enthusiasm, immense criticism, and the inability to ensure compatibility of developing branch school and departmental doctrine. The incompatibility developed through freedom of the individual branches to develop their own tactics and visions. Preferring to publish training directive instead of ensuring compliance with existing regulations, the War Department G3 allowed the branches to develop their own individual theories, that were often incompatible with existing and developing doctrine. While the War Department eventually corrected this with the publication of the 1941 *Field Service Regulations Operations*, Field Manual 100-5 the damage already occurred in terms of the cavalry.³⁰

As a result of the expansive freedom granted to the Army's branches and the conflicting nature of the War Department doctrine a distinct bifurcation developed with in the cavalry branch evident in the publication of Field Manual 2-10: *Cavalry Field Manual* in 1938. While the War Department sought to modernize and mechanize its forces, the cavalry branch had a different idea as the emotional connection to their mounts and an inbreed sense of superiority drove them to incorporate mechanization into the existing horse cavalry.³¹ Seeking to merge horse and mechanization, the manual recognized their operational differences and addressed every element

²⁹Walter E. Kretchik, *U.S. Army Doctrine: From the American Revolution to the War on Terror* (Lawrence, KS: University Press of Kansas, 2001), 138-139.

³⁰Ibid., 140-150.

³¹See Leon B. Kromer, "Address of Major General Leon B. Kromer, Chief of Cavalry, at Fort Riley, Kansas, During the April-May Maneuvers," in *The Cavalry Journal*, vol. 24 (May-June 1934), 44-46.

in two separate sections for every subject.³² Doctrine writers saw mechanized cavalry and horse cavalry regiments as all-purpose, mobile combat force with differences existing only in terms of limitations due to terrain.³³ Interestingly, while cavalry regiments and squadrons conducted offense, defensive, and security tasks, reconnaissance remained the realm of the armored car troops and squadrons even in horse units.³⁴ As proponents of mechanization and the horse struggled for dominance, the bifurcation continued to grow. This culminated in the 1941 cavalry field manuals, Field Manual 2-10: *Mechanized Cavalry* and the Field Manual 2-15: *Employment of Cavalry*, in which the cavalry branch's preferred vision of operations focused on a combined horse-mechanized regiment operating as a combat formation with reconnaissance a secondary stealthy activity conducted only by the armored car elements.³⁵

During the Louisiana phase of the 1941 General Headquarters Maneuvers, two conflicting views arose from the experiences of both mechanized and horse-mechanized cavalry; however, these views once again highlight the bifurcation that developed within cavalry doctrine.³⁶ For the cavalry branch, the horse-mechanized cavalry appeared successful, despite commander's repeated requests for additional firepower to counter-act their mechanized

³²U.S. Army Cavalry School, FM 2-10: *Cavalry Field Manual, Volume 1-III* (Fort Riley, KS: US Army Cavalry School, 1938).

³³Louis A. DiMarco, "U.S. Army's Mechanized Cavalry Doctrine in World War II," 15.

³⁴U.S. Army Cavalry School, FM 2-10: *Cavalry Field Manual: Volume II, Mechanized Cavalry*, (Fort Riley, KS: U.S. Army Cavalry School, 1938), 103 and Louis A. DiMarco, *U.S. Army's Mechanized Cavalry Doctrine*, 12. By 1938, horse cavalry regiments were organized with one armored car troop.

³⁵U.S. Army Cavalry School, FM 2-10: *Cavalry Field Manual* (Fort Riley, KS: US Army Cavalry School, 1941) and U.S. Army Cavalry School, FM 2-15: *Employment of Cavalry* (Fort Riley, KS: U.S. Army Cavalry School, 1941).

³⁶Matthew D. Morton, "Men on "Iron Ponies", 192.

opponents. General John K. Herr the last Chief of Cavalry, used the limited success to continue to advocate the utility of the mixed formation, focusing on the limitations of mechanization and overlooking the limitations of the horse.³⁷ However, to the War Department the success of the mechanized cavalry groups in the maneuvers, when framed against the backdrop of German offenses in Poland and France at the same time required action. In July 1940, this resulted in the creation of the armored force. As a result, the War Department forcibly transferred the mechanized portions of the cavalry, as well as many of its key leaders to the new created armored force in order to create a fully modernized armor and mechanized infantry divisions. It also directed the cavalry to focus exclusively on the conduct of reconnaissance operations.³⁸ Despite the events in Europe, the creation of the American armored force at the cost of the mechanized cavalry, and experience gained in training, the cavalry continued to be a proponent of retaining not only the horse but also a focus on close combat operations.³⁹ Unwilling to fully mechanize the Chief of Cavalry reluctance to adapt to change resulted in reconnaissance doctrine that remained

³⁷While the debate to retain the horse cavalry is covered by many authors in great detail, Major General Herr's own words are perhaps the best example of the cognitive dissidence of the interwar years. In a speech to the Horse and Mule Association of America on December 3, 1941 Herr outlines the dire need for cavalry on the modern battlefield, alluding that the German offensive against the Soviet Union failed for the want of horse cavalry. See Major General John K. Herr, *Why Should the United States Lag Behind Other Great Powers in the Military Use of Animals?*, before the Horse and Mule Association of America, Inc, December 3, 1941, Chicago, IL.

³⁸Robert S. Cameron, *Mobility, Shock, and Firepower*, 257.

³⁹As late as 1939, General John K. Herr, as Chief of Cavalry, went before Congress advocating that the horse-mechanized combination was the most versatile and competent organizational layout of cavalry operations. See "Cavalry Affairs before Congress," *The Cavalry Journal*, March – April 1939, 130-135. Reprinted from the hearings before the subcommittee of the Committee on Appropriations, House of Representatives Seventy-Sixth Congress (U.S. Government Printing Office). Additionally, in 1945 the 91st Cavalry Reconnaissance Squadron submitted a request to change its T/O&E to include a horse troop while in contact in Italy. See Colonel T.Q. Donaldson, *Report on 91st Reconnaissance Squadron Mechanized to Army Ground Forces Board*, 16 February 1945

out of date and that would lead his troopers into the Second World War inadequately organized and trained to fight against the German Army.

In November 1942, the U.S. Army conducted Operation Torch, its first major campaign of World War II. The great mass of mechanized-horse divisions envisioned by the cavalry in the late 1930s did not lead the fight across the deserts of North Africa. Instead, a corps separate reconnaissance squadron, an armored division armored reconnaissance battalion and infantry division cavalry troops tested principals of employment in the rugged terrain and found it wanting.⁴⁰ It failed to provide a limited operational approach for cavalry organizations at the tactical and operational level, failed to address the linkage to and execution of security operations, and proved inadequate to the tasks.

The 1941 Field Manual 100-5: *Operations* employment of cavalry was antiquated even before combat action began in North Africa. On paper, the horse borne soldier remained the backbone of the branch and machines remained the mainstay of distant reconnaissance.⁴¹ The horse cavalry focused on detail while the mechanized units concentrated on distant missions across an extensive front.⁴² The core challenge was that the three major organizations described in the manual, horse, mechanized, and horse-mechanized, had perished in the rapid mobilization for war. Furthermore, the manual directed the mechanized reconnaissance unit in North Africa conduct detailed and distant reconnaissance chiefly through stealth.⁴³ At the tactical level Field Manual 2-10: *Mechanized Cavalry* and Field Manual 2-15: *Employment of Cavalry* also reflected

⁴⁰Louis A. DiMarco, “U.S. Army’s Mechanized Cavalry Doctrine in World War II,” 35.

⁴¹Matthew D. Morton, “Men on “Iron Ponies”, 240-241

⁴²War Department, Field Manual 100-5, *Field Service Regulations, Operations, 1941* (Washington D.C.: Government Printing Office, 1941), 41.

⁴³Ibid., 6-8.

the three major organizations; however the reconnaissance troop (mechanized) in infantry divisions, the reconnaissance squadron (mechanized), and cavalry division still existed, though different than originally imagined.⁴⁴ These too however, focused on the combined horse-mechanized cavalry paradigm that did not exist. Doctrinally, reconnaissance was predominantly a passive action and as a result weak reconnaissance elements were to avoid combat unless necessary for gaining information.⁴⁵ Platoons or detachments conducted reconnaissance operations, receiving reinforcements if the likelihood of contact was high. However, this was only to regain freedom of maneuver and not to become decisively engaged.⁴⁶ Once contact was made, the reconnaissance units would transition to the identifying the enemy flanks and pay particular attention to the location and movement of hostile forces.⁴⁷

The transition of cavalry from a mounted combat arm to a specialized reconnaissance role created a capability gap in terms of security, the opposite side of the same coin of reconnaissance. Traditionally a cavalry mission, it provides the friendly force with the time and space necessary for units to change disposition in order to maintain the initiative and react to enemy actions.⁴⁸ The 1941 Field Manual 100-5, *Operations* identified it as being the responsibility of each commander and not the responsibility of a distinctive organization.⁴⁹

⁴⁴War Department, Field Manual 2-15, *Cavalry Field Manual, Employment of Cavalry* (Washington D.C.: Government Printing Office, 1941) 4-5.

⁴⁵War Department, Field Manual 100-5, *Field Service Regulations, Operations, 1941*, 45.

⁴⁶War Department, Field Manual 100-5, *Field Service Regulations, Operations, 1941*, 44-45 and Field Manual 2-15, *Cavalry Field Manual, Employment of Cavalry*, 87-89.

⁴⁷War Department, Field Manual 2-15, *Cavalry Field Manual, Employment of Cavalry*, 88-89.

⁴⁸War Department, *Field Service Regulations*, 1923, 44-54.

⁴⁹War Department, Field Manual 100-5, *Field Service Regulations, Operations, 1941*, 48.

Detachments of forces protecting the main body consisted of a reconnaissance element backed up by a supporting echelon, serving as the principal element of resistance, and for larger detachments, a reserve.⁵⁰ Finally, the employment of mechanized cavalry required caution when freedom of maneuver was restricted due to its vulnerability, but when attached its best use was in conducting reconnaissance in support of the detachment.⁵¹ Therefore, doctrinally, the cavalry was merely an enabler to security operations and entirely focused on reconnaissance to identify gaps, flanks, and provide early warning.

The 81st Armored Reconnaissance Battalion comprised of three reconnaissance companies and a tank company was a new organization created by the Army Ground Forces free from cavalry branch influence during the creation of the armored force. As such, it was the first mechanized cavalry unit operating under this doctrine to be committed to combat in Tunisia in 1943. The U.S. II Corps attached the battalion to Combat Command D of the 1st Armored Division and its actions in the first few weeks of combat are noteworthy.⁵² It was given the mission of reconnaissance and seizing high ground to the north and south of the objective of Combat Command D, Station de Sened. Moving forward in the early morning hours of 31 January 1943 with two reconnaissance companies abreast, German anti-tank guns, machine guns, and artillery fire stopped it immediately. While the battalion made desperate attempts to by-pass the entrenched enemy, terrain and enemy fire prevented the reconnaissance units from advancing. Further attempts to establish observation posts over watching the objective met with murderous

⁵⁰Ibid., 50.

⁵¹War Department, Field Manual 2-15, *Cavalry Field Manual, Employment of Cavalry*, 112-113.

⁵²Combat Command D, under the commander of the division artillery was the equivalent of a brigade-sized element consisting of the reconnaissance battalion, a tank battalion, and armored artillery battalion and the headquarters of a tank destroyer battalion.

machine gun, mortar, and artillery fire. By 1300, Combat Command D's commander called off the operation with little to show for the effort.⁵³ The first American mechanized reconnaissance operation of World War II identified for the first of many times that avoiding combat by stealth was not feasible. Additionally bypassing a determined enemy, identifying gaps, and reserve forces proved more difficult than interwar training experience and theory assumed. Finally, the speed, mobility, and stealth of the mechanized cavalry proved unable to withstand the ferocity of the German machine gun, anti-tank, mortar and artillery fire.

While reconnaissance fell short of expectations, the 81st Armored Reconnaissance Battalion conducted more robust security operations than pre-war theory expected. During the initial stages of the engagement that culminated in the Battle of Kasserine Pass, the 81st Armored Reconnaissance Battalion not only conducted reconnaissance in support of security operations, but it also became decisively engaged as the principal unit of resistance. Attached to Combat Command A, the battalion observed key passes and routes entering the division area from the east and south.⁵⁴ It established observation and listening posts with two companies, A and C, along the high ground to the south of the combat commands main body, while to the north the tank company and headquarters were located in the vicinity of Sidi-Bou-Zid. B Company meanwhile operated under division control watched the divisions north flank.⁵⁵ On the morning of 14 February, both companies reported large formations of German tanks moving to the south and west. The battalion had completed the limits of its role as the reconnaissance echelon for security;

⁵³Cavalry School, *Cavalry Reconnaissance, Number One, Operations of the 81st Armored Reconnaissance Battalion in Tunisia* (Fort Riley, Kansas: Cavalry School, 1943) and Cavalry School, *Cavalry Reconnaissance, Number Seven, Operations of a Reconnaissance Company in Tunisia* (Fort Riley, Kansas: Cavalry School, 1943).

⁵⁴Louis A. DiMarco, "U.S. Army's Mechanized Cavalry Doctrine in World War II," 41.

⁵⁵Cavalry School, *Cavalry Reconnaissance, Number One*, 18-20.

however, the situation required more effort.⁵⁶ Owing to the dispersion of the division's reconnaissance force to the combat commands with no centralized control and an uncertainty as to the exact German disposition and intention, the combat command directed it to become part of the combat echelon. C Company fought a delaying action with an assortment of light tanks, scout cars, and jeeps against the German armor with limited success. The infantry battalion defending the Kasaria Hill complex received A Company as an attachment, which robbed it of its mobility in order to support a desperate defense. Conducting an action for which it was neither doctrinal nor organizational prepared for, it lost all but two officers and fourteen men to the German offensive.

In its first month of combat, the 81st Armored Reconnaissance Battalion conducted only one reconnaissance mission and four security missions. Breaking from the theory of employment would be the norm for reconnaissance elements in North Africa; assaults, defenses, and security operations were tactical missions often assigned. Battle experience showed that reconnaissance was only one of many missions that the reconnaissance units would execute and close combat would be common.⁵⁷ Finally, the theory of reconnaissance proved false and the cavalry re-learned that reconnaissance required an offensive capability. The cavalry had one year to synthesis the lessons learned in combat, re-write doctrine, and re-train before the next major combat operations involving reconnaissance units.

Within a year of combat operations in North Africa, the Army Ground Forces evaluated, adjusted, and re-issued manuals to units in the field. The theories of action proposed would carry the American forces across the English Channel and into a different operational environment. The

⁵⁶FM 2-15, *Cavalry Field Manual, Employment of Cavalry*, 101.

⁵⁷Louis A. DiMarco, "U.S. Army's Mechanized Cavalry Doctrine in World War II," 57.

terrain favored mounted maneuver for multiple corps and would present opportunities for mechanized cavalry employment in a wide variety of roles and missions.⁵⁸ Doctrine during this period displayed the change in mindset of reconnaissance as combat operations, the continued prioritization of reconnaissance over other missions, and an operational gap that resulted in corps and divisions utilizing mechanized cavalry in non-doctrinal roles.

The first recognizable change to mechanized cavalry doctrine following combat operations in North Africa was the realization that stealthy reconnaissance alone was not feasible. However, despite combat experience tension between opinions conspired to minimize the amount of change that occurred.⁵⁹ The March 1943 Field Manual 2-30: *Cavalry Mechanized Reconnaissance* stated reconnaissance became more aggressive and difficult the closer the unit came to the enemy. However, it stopped short of indicating a clear combat role instead likening the movement of the units to fluid. The cavalry would attempt to flow around and through the enemy's obstacles and counter reconnaissance efforts by stealth to identify the enemy in depth. If halted or engaged, the senior commander would utilize reserves to allow the cavalry to regain the ability to continue.⁶⁰ Training Circular 107: *Employment of Mechanized Cavalry Units* published

⁵⁸Louis A. DiMarco, “U.S. Army’s Mechanized Cavalry Doctrine in World War II,” 75.

⁵⁹In November 1942 Major General Charles Scott submitted his observations regarding doctrine and reconnaissance stating “in this day and age, long distance reconnaissance must be organized to fight in execution of its mission, to fight for time to send information in, and to fight for time for the main body to utilize properly the information sent it”. However, in a counter-argument, Lieutenant Colonel Charles Hoy, commander of the 81st ARB countered that while “a reconnaissance unit will not fight for information. This does not mean that it need not be aggressive. It takes ‘guts’ and drive to slip past the enemy” quoted in Louis A. DiMarco, “U.S. Army’s Mechanized Cavalry Doctrine in World War II,” 58.

⁶⁰War Department, Field Manual 2-30, *Cavalry Field Manual, Cavalry Mechanized Reconnaissance Squadron* (Washington D.C.: Government Printing Office, 1943), 21-22. Doctrine authors wrote FM 2-30 for cavalry reconnaissance squadrons of the cavalry and motorized infantry divisions. Though these units never organized, the doctrine was published and was the only battalion and squadron level reconnaissance doctrine published.

in September of 1943 clearly articulated the changing doctrine stating “reconnaissance missions employ infiltration tactics, fire, and maneuver”, as well as that “when stealth fails, reconnaissance units engage in combat with enemy forces which threaten the success of the mission”.⁶¹ The 1944 Field Manual 2-20: *Cavalry Reconnaissance Troop* went even further to state that reconnaissance troops are “prepared to fight for information if necessary.”⁶² Clearly, internal mechanized cavalry doctrine acknowledged the existing requirement to fight on a case-by-case basis for information.

While transition from stealth to needing to fight for information gained traction, the idea that cavalry units focused primarily on reconnaissance remained firmly rooted. The 1944 version of Field Service Regulation FM 100-5: *Operations* reinforced this at the operational level, albeit indirectly. Once again it identified cavalry as consisting of obsolete horse and mechanized units, with mechanized cavalry organized, equipped, and trained to perform reconnaissance missions.⁶³

Training Circular 107: *Employment of Mechanized Cavalry* admonished that when reconnaissance required contact with the enemy, units must avoid becoming involved so seriously that they are unable to disengage.⁶⁴ Field Manual 2-30: *Cavalry Mechanized Reconnaissance* also reinforced reconnaissance as the sole mission of mechanized cavalry, but that incident to a reconnaissance mission reconnaissance squadrons must be prepared to attack, defend, and

⁶¹War Department, Training Circular 107, *Employment of Mechanized Cavalry* (Washington D.C.: Government Printing Office, 1943), 1 and 3.

⁶²War Department, Field Manual 2-20, *Cavalry Reconnaissance Troop Mechanized* (Washington D.C.: Government Printing Office, 1944), 93.

⁶³War Department, FM 100-5, *Field Service Regulations, Operations, 1944* (Washington D.C.: Government Printing Office, 1944), 8-10.

⁶⁴War Department, Training Circular 107, *Employment of Mechanized Cavalry Units*, 1.

delay.⁶⁵ This comment would prove prophetic for the actual employment of mechanized cavalry in the European Theater of Operations.

While Army Ground Forces mobilized corps cavalry regiments before operations in North Africa, the concept had not been tested in battle. In order to mitigate one key lesson of North Africa, that dissipation of reconnaissance failed, the Army Ground Forces eliminated the regimental headquarters, replaced it with a leaner group headquarters, and created the mechanized cavalry groups.⁶⁶ Corps commanders in the European Theater operated with the new organizational structure, which lacked a clear doctrine for their employment. While references were available at the squadron level, they remained focused on the obtaining of information for higher headquarters. Additionally, manuals warned that while the squadrons, and by extension the groups, could conduct offense, defense, and counter reconnaissance missions, they should only do so when the need was critical.⁶⁷

Despite the doctrinal impetus for a primarily reconnaissance mission mechanized cavalry performed a wealth of operations in support of their parent units. Only 3 percent of mechanized cavalry group missions assigned by corps were pure reconnaissance missions while defensive missions, the most common, were assigned 1/3 of the time. Armored and infantry divisions assigned reconnaissance as a division level task 13 and 6 percent of the time respectively to squadrons.⁶⁸ The primary reason for this was that despite the vision of reconnaissance contemplated, an organization in enemy territory well in advance of the leading combat echelons

⁶⁵War Department, Field Manual 2-30, *Cavalry Field Manual, Cavalry Mechanized Reconnaissance Squadron*, 17.

⁶⁶Matthew D. Morton, “Men on “Iron Ponies”, 353.

⁶⁷Ibid., 361.

⁶⁸U.S. Forces, European Theater Study No. 49, 49.

could rarely sneak through except during rapid pursuits.⁶⁹ Second, the reconnaissance often served as an adjunct of offensive operations and faced deliberate and skillfully prepared defenses. Finally, the use of cavalry in a defensive role served as a security element enabling corps and division commanders to maximize combat power in critical sectors. Instead of maintaining a specialized organization for the sole purpose of reconnaissance corps and division commanders, broke from current doctrine to solve the problem at hand. They identified a capability gap and employed a highly mobile, and adaptable organization to fill the doctrinal void created by the lack of a clear, precise, and modern doctrine.

Following the war, the Headquarters, United States Forces, European Theater conducted a comprehensive effort to gather information, opinions, and facts regarding the experience of the mechanized cavalry. Known as the General Boards, they published the evaluation results in Report Number 49, “Mechanized Cavalry Units” on November 1945. In regards to doctrine, the board acknowledged the disparity and confusion wrought by the anachronistic doctrine. It sought a complete revision of chapter 2 of FM 100-5: *Operations* and all the 2-series field manuals pertaining to cavalry operations in order to clearly articulate the role of the cavalry.⁷⁰ The inadequate manuals and theories presented before and during World War II suffered from both internal infighting and poor War Department guidance. The result appeared as a series of compromises and personal opinions instead of a coherent and proven theory.

Second, the board sought to clarify the doctrinal role of cavalry in light of the fact that the stealthy reconnaissance method was unsound. The combat records revealed that reconnaissance usually occurred in conjunction with the execution of other missions rather than

⁶⁹Ibid., Appendix 11, 1.

⁷⁰Ibid., 3.

as a stand-alone mission. Furthermore, fifty-six of sixty former commanders from army to corps level replied to a questionnaire from the board that combat should be the primary focus over reconnaissance for cavalry.⁷¹ Finally, the board recommend that cavalry be assigned to corps and divisions in order to maximize the highly mobile, heavily armed, and lightly equipped force's capabilities to conduct reconnaissance and security while executing combat operations. Following the war, doctrine would act as the agent of change as mechanized cavalry transformed into armored cavalry and the mission of reconnaissance elements evolved "to engage in offensive or defensive combat, either mounted, dismounted, or a combination of both, primarily in execution of security and reconnaissance missions".⁷²

⁷¹Ibid., appx 9, p 1.

⁷²U.S. Army, Field Manual 17-35, *Reconnaissance Battalion, Armored Division* (Washington D.C.: Government Printing Office, 1951), 3.

ORGANIZATION: THE NEED FOR A COMBINED ARMS TEAM

The group commander stood as a solitary figure atop the bald hill. Binoculars pressed to his eyes, camouflage and distance stymied his attempt to survey the positions of his forces. As he lowered his binoculars, he absent-mindedly began to hum a piece of classical music from his youth. His inability to see his forces did not discourage him; in fact, he was pleased with their preparations. Corps may have tasked his group to defend this flank from enemy attack, but he knew it was a truly a cavalry guard mission. He had assigned most of the reinforcements he received directly to his subordinate squadrons. The engineers had emplaced obstacles along routes and avenues of approach, before digging in as infantry along side light tanks and assault guns. Together they would prevent the enemy's columns from penetrating his line; separately they would defend each against armor and infantry attacks. Reinforcing tanks companies would serve as mobile reserves to reinforce the squadron's lines or counter attack as necessary. Artillery observers hidden on commanding terrain would enable the multiple artillery battalions beyond the horizon behind him to provide devastating effects against massed enemy formation, punishing infantry in the open and forcing armored vehicles to fight degraded. Finally, the armor companies he held in reserve would respond if the scouts conducting reconnaissance forward of the prepared defenses identified something unexpected. Suddenly, he realized what he was humming; he chuckled as he hoped that the enemy commander would be more appreciative of his orchestral work than his childhood music teacher had been of his meager musical talents.

One of the main lessons that the cavalrymen took away from the World War II mechanized cavalry was the need for a robust combined arms team. Although in reality, they were merely relearning a lesson that the Army had learned in its previous wartime experiences. In order for cavalry to be effective at reconnaissance, it must be organized and equipped to not only defeat the enemy's counter reconnaissance efforts, but also possess enough lethality and protection to engage in direct combat in order to determine the enemy's composition, disposition, and intent.

The concept of combined arms accomplishes this by utilizing the different capabilities of army branches and weapons systems to maximize the survival and combat effectiveness of each other.⁷³ Unfortunately, the assumption that stealth and infiltration were the correct solution to reconnaissance handicapped the organization and equipment of mechanized cavalry in regards to both personnel and equipment.⁷⁴ This statement remains true as well for security operations. Finally, the ability of the mechanized cavalry to conduct offensive and defensive tasks, either in support of reconnaissance and security or as a separate mission, required a combined arms organization for success. The Army required a highly mobile, heavily armed, and lightly equipped force capable of fighting offensively or defensively while providing critical information to the parent unit commander.⁷⁵ These observations surfaced not only during the lead-up to World War II, but also in the early and late periods of the war.

To say that the U.S. Army realized at the end of World War II the need for combined arms in reconnaissance and security or combat operations is obviously incorrect.⁷⁶ In truth, combined arms have been an inherent cavalry tradition since its formation in the Revolutionary War. By the end of that war the Continental Congress and General George Washington had determined that the most effective organization for reconnaissance and security was a mix of

⁷³Jonathan M. House, *Toward Combined Arms Warfare: A Survey of 20th-Century Tactics, Doctrine, and Organization* (Fort Leavenworth, KS: Combat Studies Institute, 1985), 2-3.

⁷⁴U.S. Forces, European Theater Study No. 49, 1-8.

⁷⁵Ibid., 13.

⁷⁶For the evolution of combined arms warfare see Jonathan M. House, *Toward Combined Arms Warfare: A Survey of 20th-Century Tactics, Doctrine, and Organization*; Williamson Murray and Allan R. Millet, *Military Innovation in the Interwar Period* (New York, NY: Cambridge University Press, 2008); and James S. Corum, *The Roots of Blitzkrieg* (Lawrence, KS: University Press of Kansas, 1992).

infantry and dragoons, mounted riflemen.⁷⁷ Likewise, during the Civil War, the advent of “flying artillery,” highly mobile artillery consisting of lightweight cannons combined with mounted artillerymen created a thoroughly integrated force capable of independent action.⁷⁸ In all these cases, and up through the interwar years, combined arms served to provide the cavalry with the overwhelming capability to conduct reconnaissance, security, and limited combat operations by merging lethality and mobility in a delicate balancing act.

During the inter-war years, the cavalry never lost the lessons of combined arms formations; however, for the advocates of horse and mechanized cavalry alike, the allure of serving as an independent and mobile combat force diminished the focus on reconnaissance and security. The 7th Cavalry Brigade, serving as the test bed for cavalry mechanization, experimented with a force structure that evolved towards the conduct of independent combat operations. Originally beginning with armored cars for reconnaissance and combat cars for decisive action, the attachment of the 1st Battalion, 68th Field Artillery Regiment (Mechanized) in April of 1935 increased its ability to operate independently.⁷⁹ Because mechanized cavalry was undermanned in dismounted combat operations, the mechanized cavalry incorporated an abundance of firepower,

⁷⁷ Robert Wright, *The Continental Army* (Washington D.C.: Center of Military History, 1983), 133-134. See also John K. Herr and Edward S. Wallace, *The Story of the U.S. Cavalry: 1775-1942* (Boston: Little, Brown, and Company, 1953) and George T. Denison, *A History of Cavalry from the Earliest Times: With Lessons for the Future* (London: Macmillian and Company, 1913).

⁷⁸ James A. Schaefer, *The Tactical and Strategic Evolution of Cavalry during the American Civil War* (Toledo: The University of Toledo, 1982), 76-79 and Edward Longacre, *Lincoln's Cavalrymen: A History of the Mounted Forces of The Army of the Potomac, 1861-1865* (Mechanicsburg, PA: Stackpole Books, 2000) 251. One of the finest examples of cavalry combined arms operations is General Nathan Bedford Forrest's action at Brice's Crossroads on June 10, 1864. See Robert Selph Henry, *First with the Most: Forrest*, (New York, NY: Mallard Press) 286-304.

⁷⁹ Robert S. Cameron, *Mobility, Shock, and Firepower*, 68-69.

primarily in the combat cars and machine gun companies. Later, when attached motorized infantry proved successful at limiting the mobility of enemy forces and securing captured objectives during the Army Maneuvers of 1936, the utility of mobile independent mechanized forces was evident.⁸⁰ As mechanization gained traction around the world, the horse and mechanized cavalry proponents sought to maximize the observed benefits. However, the cavalry sought to improve its position as combat force at the cost of its reconnaissance and security mission as it moved forward with the Army's developing theories of mechanized warfare.⁸¹

It is striking that on 29 September 1939 Brigadier General Adna R. Chaffee delivered a lecture to the Army War College on mechanized cavalry. Two of his comments are especially telling in regards to the organization of the mechanized cavalry at that time. First he stated that "mechanized cavalry must be proceeded by adequate reconnaissance, both ground and air, to locate obstacle, ambushes and anti-mechanized weapons, and be covered by security detachments."⁸² Second, he stated that mechanized cavalry was in "dire need of its own reconnaissance elements."⁸³ The fact that General Chaffee, a leading proponent of mechanized cavalry, believed that additional reconnaissance and security elements were required highlights the direction that the cavalry had taken. As a result, the very success of the combined-arms mechanized organization of the early-mechanized cavalry combined with events in Europe to support the War Departments decision to create the armored force in July of 1940. As part of this

⁸⁰Ibid., 74-75.

⁸¹Matthew D. Morton, "Men on "Iron Ponies", 181.

⁸²Brigadier General Adna R. Chaffee, "Mechanized Cavalry" (lecture, Army War College, Washington D.C. September 29, 1939,) 26.

⁸³Ibid.,11.

decision, the majority of mechanized forces transitioned to the armored force leaving the cavalry only responsible for reconnaissance.⁸⁴

Following the dismantling of mechanized cavalry to create the armored force, Major General John K. Herr attempted to reverse the diminishment of the cavalry branch, but events and the Army leadership ensured that he never gained the initiative. Herr sought to develop a new distribution of cavalry forces dedicated to reconnaissance that would exist from field army to division level. Each of these organizations centered on the basic building blocks of a squadron consisting of three reconnaissance troops and one light tank troop.⁸⁵ However, the signing of Executive Order 9082 on 26 February 1942 resulted in a complete reorganization of the War Department, specifically eliminating the branch chiefs and replacing them with the Army Ground Forces organization. General Lesley McNair, commander of the Army Ground Forces, unburdened by a vision of how cavalry operated, keenly observed the limitations of horse cavalry and the benefits of mechanization and pushed forward the idea to replace the horse throughout the cavalry. When Herr's time as the Chief of Cavalry expired in March 1942 he left with out a replacement, as did his attempts to accommodate horse and mechanized forces.⁸⁶ By time the Army Ground Forces were complete, each armored division had an armored reconnaissance battalion, each infantry division a reconnaissance troop, and eighteen cavalry reconnaissance squadrons (mechanized) were organized under the operational control of nine cavalry

⁸⁴Robert S. Cameron, *Mobility, Shock, and Firepower*, 250-252

⁸⁵Major General John K. Herr to the Adjutant General, Subject: Cavalry Reconnaissance Units, 23 January 1942, Washington, D. C., quoted in Matthew D. Morton, "Men on "Iron Ponies,"" 230-231.

⁸⁶Matthew D. Morton, "Men on "Iron Ponies,"" 190-233.

reconnaissance group headquarters (mechanized).⁸⁷ At the group level, the retention of the regimental headquarters created an organization capable of handling augmentation when needed, a reality that would happen as the war went on.⁸⁸

While no corps cavalry groups experienced combat in North Africa, the experiences of the armored reconnaissance battalions and cavalry reconnaissance squadrons provide insight to the benefits and shortfalls of the early war organization. Based on a doctrine of stealth and avoiding combat, both organizations entered North Africa with a modicum of combined arms. The battalion, whose organization descended from the early-mechanized force, favored an approach that pushed combined-arms down to platoon level with three reconnaissance companies and a tank company.

Internal to the reconnaissance companies, the reconnaissance platoons consisted of a scout section of four Jeeps, two with 60-mm. mortars mounted on board, an armored car section consisting of four armored cars with .30-caliber machine guns, and an assault gun section with one 75 mm. self-propelled assault gun.⁸⁹ The assault guns in particular were considered among the best assets in the unit as frequently they were instrumental to ensuring either the successful disengagement and withdrawal of reconnaissance elements unable to extricate themselves from the German' defenses or defeating German armor.⁹⁰

⁸⁷Louis A DiMarco, "U.S. Army's Mechanized Cavalry Doctrine in World War II," 24.

⁸⁸William S. Nance, "Patton's Iron Cavalry: The Impact of the Mechanized Cavalry on the U.S. Third Army" (Masters of Arts Theses Collection, University of North Texas, 2011), 25.

⁸⁹War Department, *Table of Organization No. 17-35, Armored Reconnaissance Battalion* (Washington D.C: Government Printing Office, 1942).

⁹⁰Cavalry School, *Cavalry Reconnaissance, Number One, Operations of the 81st Armored Reconnaissance Battalion in Tunisia* (Fort Riley, Kansas: Cavalry School, 1943) and Cavalry School, *Cavalry Reconnaissance, Number Seven, Operations of a Reconnaissance Company in Tunisia* (Fort Riley, Kansas: Cavalry School, 1943), For an example of the utility of the assault

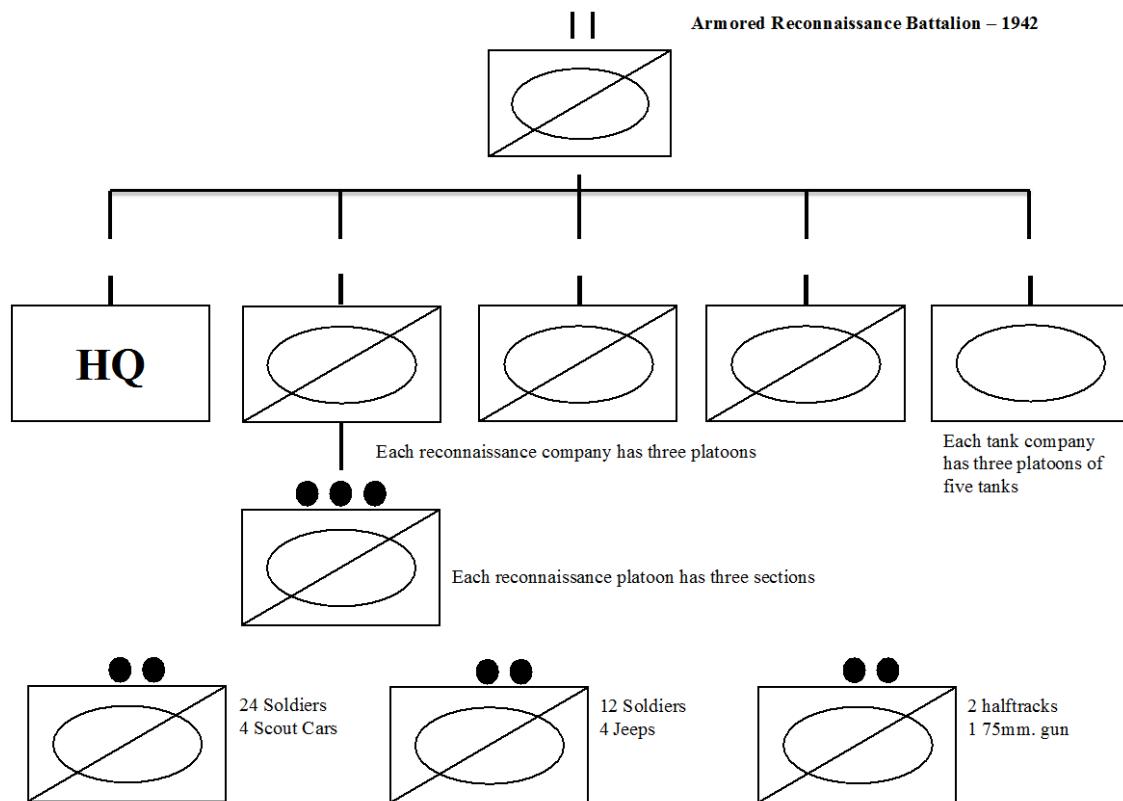


Figure 1. Armored Reconnaissance Battalion – 1942

Source: War Department, Table of Organization No. 17-35, *Armored Reconnaissance Battalion*

The cavalry reconnaissance squadron differed slightly from the reconnaissance battalion organization in North Africa. While the Squadron benefited from the addition of an engineer pioneer and demolition platoon and antitank platoon, the reconnaissance platoons lacked assault

guns see the withdrawal of Company A, 81st ARB at Station de Sened after accurate artillery and anti-tank gun fire prevented the company from maneuvering forward or out of the engagement area.

guns in the table of organization.⁹¹ As a result, and based off of experience where the light tank companies were often not in position to support the reconnaissance companies/troops, both the reconnaissance battalion and squadron frequently tasked organized tank platoons down to the reconnaissance companies/troops.⁹² The 91st Cavalry Reconnaissance Squadron's reconnaissance operations from May 3, 1943 to May 9, 1943 typified this ad hoc approach to combined arms to great effect as the squadron successfully led armored elements of Combat Command A, 1st Armored Division east through heavy German contact.⁹³ Combined-arms operations at the troop-level enabled the 91st Cavalry Reconnaissance Squadron to temporarily increase the firepower of the reconnaissance companies and provide a mobile anti-tank capability. Utilizing fire and maneuver to determine enemy positions and establish the conditions for the combat command, the squadron enabled armor battalions to strike in depth across the battlefield. However despite occasional and local success, in the end, even the combined-arms nature of the early mechanized cavalry in North Africa were unable to offset the gap between the capabilities of the German forces and the mechanized cavalry in North Africa.

⁹¹ War Department, *Table of Organization No. 2-25, Cavalry Reconnaissance Squadron, Mechanized* (Washington D.C.: Government Printing Office, 1943).

⁹² For details on the German mechanized attack through the Sidi-Bou-Zid passes on February 14 and 15, 1943 see *Cavalry Reconnaissance Number One: Operations of the 81st Armored Reconnaissance Battalion in Tunisia*.

⁹³ See Cavalry School, *Cavalry Reconnaissance Number Four: Operations of the 91st Cavalry Reconnaissance Squadron (Mechanized) from Mateur to Bizetere* (Northern Tunisia) (Fort Riley, Kansas: Cavalry School, 1943).

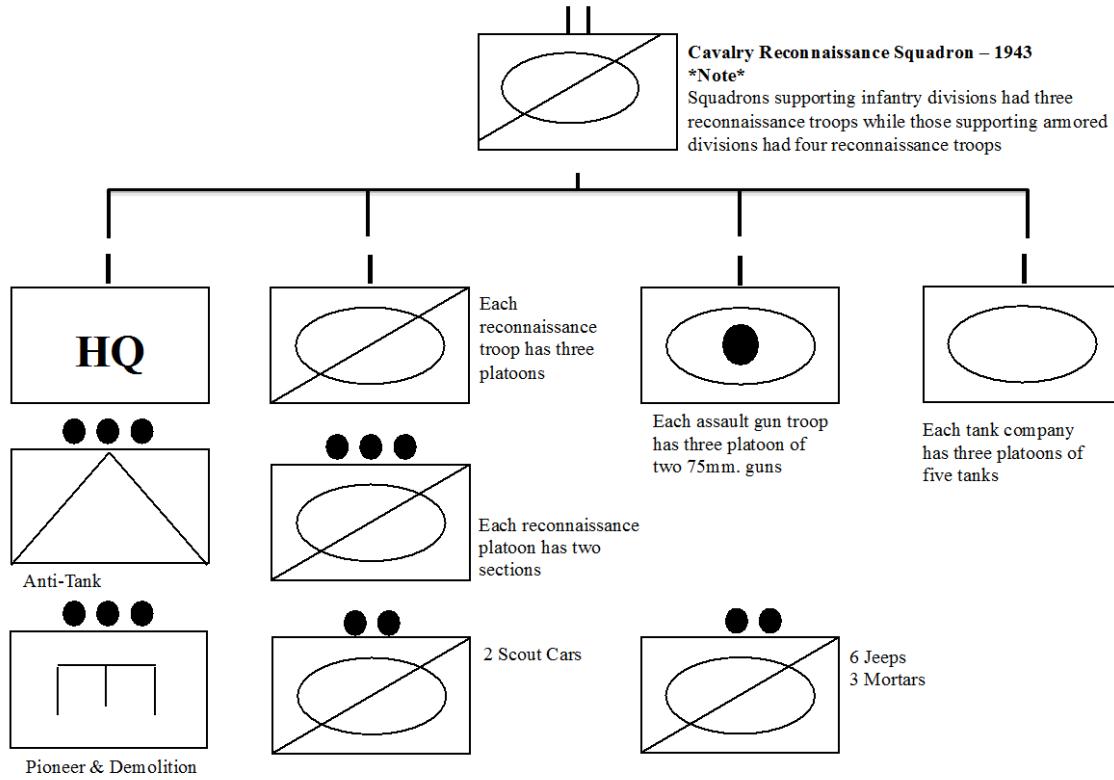


Figure 2. Cavalry Reconnaissance Squadron – 1943

Source: War Department, Table of Organization No. 2-25, *Cavalry Reconnaissance Squadron, Mechanized*

Because doctrine expected reconnaissance forces to use stealth and avoid combat, the Army Ground Forces equipped the units only to assist the advance of reconnaissance elements.⁹⁴ As a result, they lacked the capability to engage in direct combat and were more often than not, unable to withstand the capabilities the German army brought to bear against them. The assault guns in the reconnaissance battalions were valued weapons, because they were one of the few

⁹⁴Field Manual 2-15: *Cavalry Field Manual - Employment of Cavalry*, (Washington D.C. Government Printing Office, 1941), 8.

weapons capable of dealing effectively with German tanks and were also effective in forcing entrenched German infantry to displace, breaking up heavy resistance.⁹⁵ However, the M3 Stuart light tanks, while agile, quick, and reliable, were ineffective against the armor of the German tanks encountered.⁹⁶ The jeep exceeded all expectations as a light scout vehicle due to its mobility and ruggedness. However, as an open unarmored vehicle it was extremely vulnerable to mines, direct fire, and reconnaissance units abandoned many jeeps under fire due to a lack of armor protection.⁹⁷ Finally, the M3 White armored cars, a lightly armored wheeled vehicle, doctrinally intended to protect the scout vehicles, suffered from inadequacies that often kept it far removed from the jeeps. Underpowered, too large to negotiate rough terrain, and armed with only machine-guns for firepower, the armored cars chief usefulness was as a radio relay station.⁹⁸

The drive to develop a capability to fulfill a doctrinal requirement produced exactly what Army Ground Forces envisioned, reconnaissance elements that were capable of stealth and mobility. Unfortunately, the reality that they faced required a different doctrine and organization. Cavalrymen in combat, as they had in years before, continued to apply creative solutions to overcome organizational problems. However, over-arching manpower and equipment shortages

⁹⁵Louis A DiMarco, “U.S. Army’s Mechanized Cavalry Doctrine in World War II”, 53-54

⁹⁶Ibid., 55

⁹⁷Major Robert Hutchison quoted in *The Armored School*, “ONTOS in the Reconnaissance Platoon: A Research Report Prepared by Committee 19 of the Armor Officer Advance Course” (Fort Knox, KY: The Armored School, 1953), 18.

⁹⁸Larry W. Candler, "91st Reconnaissance Squadron in Tunisia -A Detailed Study," in “Modern Reconnaissance: A Collection of Articles from The Cavalry Journal,” special issue, *Cavalry Journal* (1944): 173.

would require Army Ground Forces to acknowledge the lessons of North Africa before change would occur.⁹⁹

On September 19 1944, the XX Corps, U.S. Third Army established “Task Force” Polk by attaching the 135th Combat Engineer Battalion, the 6th Cavalry Task Force, and the 1st Battalion of the 1st Regiment, Paris Division to the 3rd Cavalry Group (Mechanized).¹⁰⁰ Over the next two months, the Task Force would provide security for the corps by guarding along a twenty-mile front on the corps north flank, thereby allowing the corps commander to concentrate his divisions on a narrow front for the planned offensive to seize the city of Metz. On November 2, XX Corps assigned the task force the mission of reducing a battalion-sized German strongpoint that could identify forces moving into assault positions and place accurate artillery fire on the staging areas. Further, the corps changed the overall task organization to consist of the groups two reconnaissance squadrons, the 135th Combat Engineer Battalion, the 705th Tank Destroyer Battalion, and the 40th Field Artillery (FA) Group consisting of two battalions.

Over a two-day period, the cavalry fought and succeeded in eliminating the strongpoint at a heavy cost in men and equipment. Because of the offensive action, the German Army was unable to accurately identify the American build-up behind the cavalry’s security zone. Interestingly, the decisive forces in the victory were the artillery, tank destroyers, and engineers, elements not assigned to the cavalry group, but elements that would routinely be attached throughout the European theater to cavalry groups.¹⁰¹ It was the attachment of additional forces, each bringing unique and complementary capabilities, to the late war mechanized cavalry groups

⁹⁹Matthew D. Morton, “Men on “Iron Ponies,” 327.

¹⁰⁰William Stuart Nance, *Patton’s Iron Cavalry*, 69. The 6th Cavalry Task Force was comprised of two assault gun troops and a tank company of the 6th Cavalry Group (Mechanized).

¹⁰¹Ibid., 70-73.

that ensured they were capable of fighting for information and time for the main body to properly utilize the information provided.¹⁰²

Following the North African campaign in September 1943, Army Ground Forces adjusted the mechanized cavalry organization to reflect its combat experience. At the corps level, the mechanized cavalry group consisted of an austere headquarters and headquarters troop capable of commanding and controlling any number of units assigned to the group. Each group habitually contained two attached mechanized reconnaissance squadrons. This emphasized the ability to rapidly detach the squadrons to other units, to conduct missions independent of the group, and the ability to expand the group as missions dictated.¹⁰³ To facilitate this McNair and the Army Ground Forces created a pool of corps controlled artillery, engineers, tank and tank destroyer units, and support troops. They intended this to enable corps commanders to have the flexibility to blend the proper combination of forces for specific missions.

Additionally, the Army Ground Forces standardized all cavalry units under one table of organization to include redesignating the armored reconnaissance battalions of the armored divisions as cavalry reconnaissance squadrons.¹⁰⁴ Internal to the squadrons, the reconnaissance troops retained three platoons with an armored car section of three M8 armored cars and a scout section of six Jeeps. Troop aggregate strength was 145 soldiers, however; only 27 riflemen were

¹⁰²Charles L. Scott, "Armored Reconnaissance," in "Modern Reconnaissance: A Collection of Articles from The Cavalry Journal," special issue, *Cavalry Journal* (1944): 22.

¹⁰³William Stuart Nance, *Patton's Iron Cavalry*, 26.

¹⁰⁴Louis A DiMarco, "U.S. Army's Mechanized Cavalry Doctrine in World War II", 64. The only differences that existed were that the cavalry reconnaissance squadrons of armored divisions were authorized a fourth reconnaissance troop and the assault gun troop was authorized two addition assault guns for a total of eight. See Table of Organization Number 2-25: *Cavalry Reconnaissance Squadron*, Mechanized, September 15, 1943.

available as dismounts, severely constraining both dismounted reconnaissance and maneuver.¹⁰⁵ Corps commanders addressed the shortage of dismounted soldiers by routinely attaching engineers to the groups to serve as dismounted infantry. Additionally, Army Ground Forces increased the number and type of weapon systems in an attempt to offset the dismounted weakness by providing the reconnaissance troops with nine 60-mm. mortars and more machine guns than an American infantry battalion provides.¹⁰⁶ Based on the North Africa experience, the assault guns were consolidated into a single troop in order to provide the ability to mass fires when needed; however, the technique of task organizing them to reconnaissance troop and platoon level did remain a common practice. The tank company remained three platoons of five light tanks each.¹⁰⁷ The 1943 table of organization continued to reflect the limited combat role of the mechanized cavalry groups. However, in the European Theater of Operations cavalry reconnaissance elements returned to fill a more traditional cavalry role through the application of the pool of corps controlled units.

In the breakout from the Normandy beachhead and the exploitation of Operation COBRA, American commanders broke from the reconnaissance only doctrine and utilized cavalry elements for security operations also. They did this to screen the gaps developing between the armored divisions and the slower infantry divisions, with the mobility of the mechanized cavalry mitigating the risks posed to the flanks of corps and divisions sweeping into the interior of France. However, as German resistance stiffened, the ability of the mechanized cavalry to conduct effective reconnaissance and security diminished due to the unsuitability of

¹⁰⁵Table of Organization, Number 2-25: *Cavalry Reconnaissance Squadron*.

¹⁰⁶U.S. Forces, European Theater Study No. 49, Annex 8, 2.

¹⁰⁷Table of Organization, Number 2-25: *Cavalry Reconnaissance Squadron*.

equipment to combat the threat they faced. A prime example occurred on September 18, 1943 when elements of the 111th Panzer Brigade attacked the 2nd Cavalry Group and its 42nd Squadron at Lunéville. While the squadron was successful in delaying the attack, the cost was high. German tanks destroyed half of the assault guns, whose 75-mm. guns could not penetrate the German armor, and took serious losses including its commander, Colonel Reed.¹⁰⁸ As a result of this and similar incidents across the theater, mechanized cavalry began to receive additional corps controlled units as attachments in order to accomplish their mission.

In order to ensure that the mechanized cavalry could successfully accomplish reconnaissance and security, division and corps commanders provided additional tank, artillery, and engineer support that the basic organization lacked. For the mechanized cavalry conducting in the offense attachments might include a tank battalion, a field artillery battalion, a tank destroyer battalion and two engineer companies in support. For defensive actions, the command could attach as many as four field artillery battalions, a tank destroyer battalion, four engineer battalions (operating as infantry), an engineer battalion, and a signal platoon.¹⁰⁹ Division level cavalry squadrons received similar attachments, though generally heavier on armor and infantry units.¹¹⁰ In most cases, these attachments depleted the senior commander's combat strength in other parts of the battle area.

While at first glance, it appears that the attachment of additional forces lead to a shift in focus from reconnaissance and security to offensive and defensive operations the reality is that the increase in combat power actually enabled reconnaissance and security operations. While

¹⁰⁸William Stuart Nance, *Patton's Iron Cavalry*, 44-46.

¹⁰⁹U.S. Forces, European Theater Study No. 49, Appendix 3, 9.

¹¹⁰Ibid., Appendix 4, 3.

tasked to defend west of Metz, the 3rd Cavalry Group was in reality guarding the northern flank of XX Corps. The task to reduce the battalion strongpoint, while offensive in nature was conducive to the improvement of the security zone for the corps allowing time to maneuver forces unobserved and uninfluenced by the Germans. This single action is not the exception but the rule. A study of the combat record shows that cavalry organizations frequently conducted reconnaissance and security in conjunction with the execution of another mission. In order to accomplish these missions, mechanized cavalry needed its organization to center on a robust combined arms effort.

When the General Board reviewed the operations in Europe following the end of the war, it made full use of the recent combat experience to make clear and concise recommendations on the future of mechanized cavalry. In terms of capabilities, the consensus was that while the organization required changes, it should remain agile by minimizing the addition of excessive personnel, vehicles, or unnecessary organizations. Furthermore, the mechanized cavalry required an increase in firepower, mounted and dismounted, without a commensurate reduction in the mobility, range, and speed of the organization.¹¹¹ In effect, it sought to organize the mechanized cavalry simply as cavalry, an independent, highly mobile, and heavily armed combat force.¹¹²

In terms of organization to meet these capabilities and the recommended doctrinal changes the Board recommend the designation of mechanized cavalry groups should change to cavalry regiments with three squadrons. Each squadron would include a headquarters troop, three cavalry troops, a dragoon troop, a tank troop, and a howitzer troop completing a true combined

¹¹¹Ibid., 20.

¹¹²In fact, the boards specifically recommend that mechanized cavalry be called cavalry see U.S. Forces, European Theater Study No. 49, Appendix 2, 1.

arms team.¹¹³ They did not recommend the inclusion of additional field artillery and engineers, provided that in the future separate field artillery and engineer battalions were available as required.¹¹⁴ Acknowledging the success and benefit of coordinated action with aviation elements an air liaison section or sections was recommended to meet the needs of the regiment and squadrons. Finally, the Board recommended that both armored divisions and infantry divisions contain a single cavalry squadron of the same combat strength as the regimental squadrons. In time the Board's recommendations would closely match the reality fielded, as a result the cavalry once again became a robust combined-arms team capable of conducting reconnaissance and security operations against threat forces.

¹¹³Ibid., 2. Cavalry troops would consist of three cavalry platoons of three sections each. The dragoon troop was with 197 soldiers in three dragoon platoons and a mortar platoon, would eliminate the risk posed by previous operations that lacked dedicated infantry support. The tank troop remained in the now familiar three platoons of five tanks each configuration. The howitzer troop would provide three firing platoons of two howitzers each and a tank destroyer platoon with six vehicles.

¹¹⁴Ibid., 15-16.

INTELLECTUAL FRAMEWORK

The cavalry major's boots crunched loudly as he walked across the thin layer of snow. Entering a dark cavernous barn that served as an impromptu group headquarters, he made his way to the side of his commander standing in front of a monolithic map board. Newly arrived in Europe to replace the previous operations officer, he waited patiently as his commander stared intently at the map. As his breath condensed in the cold air, he reviewed the relevant reconnaissance doctrine in his head. Surprisingly, when his commander broke the silence he explained that across the group's front squadrons were attacking and defending in order to protect the corps flank. Stunned only for a second the major reoriented his train of thought. Reaching into the deep recesses of his mind, he thought back to his time as a lieutenant and captain. As a horse cavalryman long ago, he had participated in training exercises similar to the operations his commander now described. Comparing these with the lessons he recently received at the staff school on mechanization and cavalry division operations he rapidly adapted to the situation he faced. Silently thanking his lifetime of experience and education he began to offer his thoughts on the operations and made practical suggestions on current and subsequent operations.

Despite a faulty doctrine and organization that focused on an exclusive mission of stealthy reconnaissance, the mechanized cavalry groups of World War II evolved into an independent, highly mobile, and heavily armed combat force whose experience allowed the General Board to make observations and recommendations on doctrine and organization. What the board did not address however was that soldiers, not theory and equipment, accomplish missions and win wars.¹¹⁵ While changes to doctrine and organization evolve quickly in peace and war, developing the leaders with the necessary requisite skills and abilities takes longer.

¹¹⁵Department of the Army, Training and Doctrine Command Pamphlet 525-66, *Force Operating Capabilities* (Washington D.C.: Government Printing Office, 2008), 158.

Developing leaders requires firsthand combat and contingency experience, lessons learned, and individual and collective training, assessment, and feedback; and proficient superiors, peers and subordinates.¹¹⁶ Mechanized cavalry operations in World War II showed the utility of extensive experience in cavalry operations, professional education, and the ability to gather and share lessons learned that enabled the mechanized cavalry to achieve the necessary transitions and conduct reconnaissance, security, and combat operations.

Experience is essential to developing officers capable of conducting not only combined-arms combat maneuvers but also reconnaissance and security. It builds upon the most basic skills learned and transforms into mental agility, sound judgment, innovation, and domain knowledge.¹¹⁷ The officers who led the mechanized cavalry units in World War II developed these traits within a long tradition of cavalry service. A tradition based on shared experiences, inter-war training, and individual assignments.

Cavalry leaders of World War II benefitted from both indirect and direct sources of experience. Indirectly, knowledgeable cavalry leaders whose experience ranged from the great plains of the United States to the trenches of World War I mentored future leaders. Split into small detachments parceled across the frontier, the successful practice of utilizing cavalry as dismounted infantry became a fetish to the cavalry forces, such that they did not know when to stay on their horses.¹¹⁸ Many of these same horse soldiers would continue to see action in the

¹¹⁶Department of the Army, Department of the Army Pamphlet 600-3, *Commissioned Officer Professional Development and Career Management* (Washington D.C.: Government Printing Office, 2010), 2.

¹¹⁷Department of the Army, Field Manual 6-22, *Army Leadership: Competent, Confident, and Agile* (Washington D.C.: Government Printing Office, 2006), 6-1 - 6-3.

¹¹⁸Major Leory Eltinge, “Notes on Cavalry”(lecture presented to class of provisional second lieutenants, Fort Leavenworth, Kansas, February 14, 1917), 33.

Spanish-American War, the Philippine Insurrection and the Punitive Raid into Mexico as the U.S. Army's cavalry regiments were the force of choice.¹¹⁹ As such, the cavalrymen learned to operate in small adaptive forces, willing to adjust their techniques based on the subjective nature of war.¹²⁰ Although the cavalry functioned again as mounted infantry in these conflicts, the lessons of reconnaissance and security remained with in the profession.¹²¹ The junior leaders of these conflicts shared their experiences to the ensuing generations of cavalry officers in “tribal lore” and official publications.¹²²

Two mechanisms contributed to the gaining of direct experience, first through intensive training exercises and second through career management of individual assignments. Experience is the critical component of leader development from which officers learn standards and norms.¹²³ In terms of training experience, the interwar years witnesses a level of training exercise never before experienced in U.S. Army history. Starting with the 1934 Fort Riley Maneuvers and continuing until the 1941 Louisiana Maneuvers, the Army conducted large-scale training at

¹¹⁹John K. Herr, *The Story of the U.S. Cavalry*, 211-241.

¹²⁰Carl Von Clausesewitz, *On War*, trans. and ed. Michael Howard and Peter Paret, (Princeton, NJ: Princeton University Press, 1976), 85. The subjective nature of war includes those elements—such as military forces, their doctrines, weapons, as well as the environments (land, sea, and air) in which they fight—that make each war unique.

¹²¹United States Cavalry and Armor Association, “History of the United States Cavalry and Armor Association”, United States Cavalry and Armor Association, <https://netforum.avectra.com/eweb/DynamicPage.aspx?Site=USAA&WebCode=010> (accessed March 15, 2013).

¹²²The Cavalry Journal remains one of the essential semi-official publications for the transmission of knowledge within the Army. See Combine Arms Research Library Archives Collection R1B for 1938 to 1940 issues of the Cavalry Journal and United States Cavalry Association, “Journal of the U.S. Cavalry Association: July 1, 1913 to June 30, 1914”, volume 24 (Leavenworth, KS: Ketcheson Printing).

¹²³Department of the Army, Pamphlet 600-3, *Commissioned Officer Professional Development and Career Management*, 2.

echelons ranging from multiple brigades and regiments to multiple corps.¹²⁴ In each of these events, horse, mechanized, or horse-mechanized cavalry featured prominently and leaders and soldiers gained experience conducting large unit operations across great swaths of the United States. In this instance, the bifurcated doctrine of the interwar years served as a boon for future cavalry group commanders. While the mechanized cavalry would enter World War II doctrinally and organizationally prepared to conduct reconnaissance centric operations, their commander's pre-war experience focused on the utilization of the various incarnations of cavalry as independent, highly mobile, and heavily armed combat forces. They displayed their experience in adaptation, improvisation, and action during World War II.

Supplementing the experience of the maneuvers, the assignment history of individuals ensured that the experience they gained was not lost or frittered away. Despite the creation of the armored force in June 1940, and the resultant significant and permanent loss of many cavalrymen with mechanized experience, the cavalry branch retained enough experienced leaders.¹²⁵ Leaders like Colonel Vernard Wilson, the wartime commander of the 106th Cavalry Group (Mechanized), who during the 1940 Third Army Maneuvers, part of the larger Louisiana Maneuvers, served as the senior controller for the 6th Cavalry Regiment.¹²⁶ Not only did he help to develop the leaders of the 6th Cavalry Regiment, he also gained immense experience by seeing first hand the role he

¹²⁴For a complete listing of maneuver exercise conducted during the interwar years see Robert S. Cameron, *Mobility, Shock, and Firepower*, George F. Hoffman, *Through Mobility We Conquer*, and Christopher R. Gabel, *The U.S. Army GHQ Maneuvers of 1941* (Washington D.C.: Center of Military History, 1991). For detailed information on the 1940 Army Maneuvers see, Headquarters IV Corps, *Final Report Third Army Maneuvers*, 1940 and Headquarters Third Army, *Third Army Maneuvers: Sabine Area*, 1940.

¹²⁵Robert S. Cameron, *Mobility, Shock, and Firepower*, 253-255.

¹²⁶*Third Army Maneuvers: Sabine Area*, 8.

would one day fill as a cavalry group commander.¹²⁷ The continuing mentorship and critical assignments provides a rationale for why the cavalry group commanders were top-quality professional soldiers.¹²⁸

The training experiences helped future commanders understand the right and wrong answers for the employment of mechanized cavalry, but education is also required for the development of an intellectual framework. Education, then as now, requires thinking and reflection, which takes time to develop.¹²⁹ From 1936 to 1940, the Command and General Staff School at Fort Leavenworth, Kansas provided the education that prepared officers for general staff officer and command positions in World War II. Focusing primarily at the division level, with some attention on the brigade and corps level, the school provided a curriculum that, although evolving to keep abreast of changing doctrine, successfully prepared cavalry officers for their future assignments.¹³⁰ Cavalry operations accounted for fifty-seven hours out of 1309 ½

¹²⁷Colonel Andrew A. Frierson, commander of the 11th Mechanized Cavalry Group served with the 2nd, 7th, 8th, 10th, and 11th Cavalry Regiments prior to assuming command of the 11th Cavalry Regiment on the eve of World War II, see George L. Haynes Jr and James C. Williams, “*The Eleventh Cavalry From the Roer to the Elbe*”, 79. Colonel James H. Polk, commissioned in 1933 served with the 8th Cavalry Regiment as a lieutenant and staff officer, with a brief hiatus as an instructor at West Point. Upon arrival in the ETO he served as the executive officer of the 106th Cavalry Group before commanding the 6th and 3rd Cavalry Groups see U.S. Cavalry Association, *We Remember: U.S. Cavalry Association* (New York: Turner, 1996). 133-134. Colonel Garnett H. Wilson, commissioned in 1917, served with the 6th Cavalry Regiment in France during World War I, and then the 8th, 12th, and 2nd Cavalry Regiments prior to completing the basic and advanced Cavalry School courses. Prior to assuming command of the 115th Cavalry Group, he served as the executive officer of the 4th Cavalry Regiment and the 115th Cavalry see *We Remember: U.S. Cavalry Association*, 146.

¹²⁸George F. Hoffman, *Through Mobility We Conquer*, 390.

¹²⁹Joan Johnson-Freese Orbis, “The Reform of Military Education: Twenty-Five Years Later” in *A Journal of World Affairs* 56, no. 1 (Winter 2012).

¹³⁰Timothy K. Nenninger, *A Brief Account of the Evolution of the Regular Course at the United States Army Command and General Staff College* (Fort Leavenworth, KS: Command and General Staff College, 1988).

hours of the course in 1936 and sixty-four hours out of 1073 in 1938. Unlike, other branches, which were primarily lecture-based, this instruction focused on map and command post exercises instead of lectures.¹³¹ The courses themselves reinforced cavalry principals of employment such as independent action, reconnaissance, security, offensive operations, and the relationship between cavalry operations and those of the main body.¹³²

Interestingly, while the education prepared cavalry officers for the way they would fight in Europe, they actually provided little in the way of what doctrine would require mechanized cavalry to do. Partially this was the fault of the bifurcated concepts and delays in adjusting doctrine and organizations to the changes created by the creation of the armored force. The 1939-1940 Regular Class allotted 54 hours of education for the horse-mechanized cavalry doctrine while the 1941 class schedule called for periods of instruction on the cavalry division.¹³³ The

¹³¹The Command and General Staff School, “Schedule for the 1936-1937 Regular Class”, Fort Leavenworth, KS: The Command and General Staff School Press, 1936), 4-5 and The Command and General Staff School, “Schedule for the 1938-1939 Regular Class”, Fort Leavenworth, 5 for further detail on how individual classes are broken down further in both documents. See also Peter J. Schifferle, *America’s School for War: Fort Leavenworth, Officer Education, and Victory in World War II* (Lawrence, KS: University Press of Kansas, 2010).

¹³²A.P. Thayer to Officers Named in Directives, April 14, 1941, Resident Class Instructional Matters, CGSC/1941, Combined Arms Research Library Fort Leavenworth, KS, Schedule 8, 19, 56, 68, 81, and 85. This memorandum includes the detailed schedules for each of the cavalry course highlighting topics and doctrinal reference for each subject.

¹³³Command and General Staff School, “Schedule for 1939-1940 Regular Class”, Resident Class Instructional Matters, CGSC/1939, Combined Arms Research Library Fort Leavenworth, KS, 5. See also W.E. Burns Notice to Instructors, December 11 1939, Resident Class Instructional Matters, CGSC/1939, Combined Arms Research Library, Fort Leavenworth, KS that directs the utilization of the composite cavalry units for exercises despite the table of organizations not yet being complete. For the cavalry division lesson see Memorandum for officers named in Directives from A.P Thayer, April 14, 1941, “Schedule 81” Resident Class Instructional Matters, CGSC/1941, Combined Arms Research Library Fort Leavenworth, KS. The U.S. Army cancelled the 1941 course based on wartime demand for officers; however, the course schedule was complete and prepared with employment of the cavalry division as a block of instruction. The 1st Cavalry Division was the only cavalry division in existence and was demounted in 1942.

Command and General Staff School did attempt to rectify the challenges presented by delays in doctrine development and the rapidness of change.¹³⁴ However, this problem was never fully resolved and in fact proved fortuitous to the future cavalry group officers. As a result of instructing based on principles that envisioned cavalry as a multi-purpose mobile combat force, similar to armor or infantry, the World War II commanders were able to rapidly transition from a reconnaissance only force to a fighting formation with the primary purpose of reconnaissance and security.

To improve their proficiency, leaders take advantage of chances to learn and gain experience.¹³⁵ A third way to gain the requisite experience and intellectual capital is through the sharing of lessons from combat. Doing so provides a view into the experiences of others while providing the time to think and reflect on how one would proceed or act in that situation. During the war units and organizations conducted periodic formal after action reviews in an attempt to collect and share lessons from combat. Supplementing this was the utilization of wartime commanders as instructors and an informal process of sharing experience.

While the General Board focused on reflection on action, units conducted periodic after action reviews in order to gather information, experience, and insights into the conduct and nature of war. These reviews were effective in capturing the details of operations in narrative form, provided copies of operations orders, and finally, provided insight into the suitability of doctrine, organization, and equipment.¹³⁶ In addition to these formal unit centric reports, outside observers

¹³⁴See W.E. Burns Notice for Instructors from, June 23, 1939, Fort Leavenworth Kansas.

¹³⁵FM 6-22, 2-8.

¹³⁶See 82d Armored Reconnaissance Battalion After Action Review, June 1944 thru May 1945, After Action Report, 81st Reconnaissance Squadron, 31 January 1943 thru 31 December 1944,

often conduct visits to identify critical lessons and experience as well. For example, Major General Charles S. Scott commander of the Armored Replacement Training Center served as the senior officer of the U.S. Military Delegation in the Middle East from March to July 1942 in which he recorded and subsequently published his observations of combat in North Africa.¹³⁷ Unit after action reviews and personal observations allowed the Army as a whole to adjust doctrine and organization to adapt to the nature of combat.

In addition to sharing information, the mechanized cavalry benefited by rotating leaders with combat experience from front-line units to the wartime training schools to share their experience with fresh soldiers and leaders. Military units do not stop functioning when the leader departs. The rotation of leaders might cause temporary problem, but long term it benefits the organization by ensuring shared experience.¹³⁸ The mechanized cavalry accepted this risk and returned various leaders with combat experience early in the war to the Cavalry School. The return of warriors like Lieutenant Colonel Charles J. Hoy and Lieutenant Colonel Harry W. Chandler, commanders of the 81st Armored Reconnaissance Battalion and 91st Cavalry Reconnaissance Squadron in North Africa respectively, brought recent wartime experience back to the Cavalry School.¹³⁹ In addition to the experience they provided as instructors at the Cavalry School, the operations of their units served as instructional material for soldiers and officers preparing to join mechanized cavalry units.¹⁴⁰ The inclusion of operational experience into

¹³⁷“Modern Reconnaissance”, 21.

¹³⁸Field Manual 6-22, *Army Leadership: Competent, Confident, and Agile*, 3-11

¹³⁹Charles J. Hoy, “Reconnaissance Lessons from Tunisia,” in “Modern Reconnaissance: A Collection of Articles from The Cavalry Journal,” special issue, *Cavalry Journal* (1944): 118.

¹⁴⁰The Cavalry School produced seven pamphlets in 1944 entitled Cavalry Reconnaissance, which in narrative format followed the action of various cavalry reconnaissance units at multiple echelons and utilized footnotes to highlight relevant doctrinal principals. See

education with the wartime commander as an instructor served as a crucial mechanism for preparing soldiers and leaders for combat in the later periods of the war.

While formal after action reviews and the inclusion of wartime experience into education is important, the mechanized cavalry, like other branches, benefited from an informal process that served as a bridge between past doctrine, experience, and future concepts. Publications like the Cavalry Journal and Military Review enabled officers and non-commissioned officers to share their experiences, theories, and insights to the force at large. It also served as a mechanism for authors to reflect on their previous experiences. Through reflect and synthesis, they further developed their intellectual framework for operations. In terms of lessons from the wartime employment of mechanized cavalry, the polarization of stealth reconnaissance centric operations vice reconnaissance and security enabled by offensive and defensive combat operations continued within the pages of the Cavalry Journal and Military Review.¹⁴¹ As suspected, little in the way of consensus occurred in the pages of these publications and the extent of their influence on the General Board is unknown. However, these articles did enable the development of the intellectual framework of successful commanders and staff officers.

Cavalry Reconnaissance Number One through Number 7.

¹⁴¹For stealthy reconnaissance specific articles see Jay C. Whitehair, “Reconnaissance – Sine Qua Non,” in *Military Review*, Volume 23 no. 7 (October 1943): 8-11; Charles J. Hoy, “Reconnaissance Lessons from Tunisia”; and Charles J. Hoy, “Patrols and Operations of the 81st Reconnaissance Battalion in Tunisia,” in “Modern Reconnaissance: A Collection of Articles from The Cavalry Journal,” special issue, *Cavalry Journal* (1944): 135-137. For aggressive reconnaissance and security effort see Bruce Plamer JR, “Battle Lessons on Reconnaissance,” in “Modern Reconnaissance: A Collection of Articles from The Cavalry Journal,” special issue, *Cavalry Journal* (1944): 113-118 and Charles L. Scott, “Armored Reconnaissance,” in “Modern Reconnaissance: A Collection of Articles from The Cavalry Journal,” special issue, *Cavalry Journal* (1944): 21-27. Finally for the continued utilization of horse cavalry see Robert Geake, “A Provisional Reconnaissance Unit,” in “Modern Reconnaissance: A Collection of Articles from The Cavalry Journal,” special issue, *Cavalry Journal* (1944): 191-194.

While never addressed by the General Board, the intellectual framework of mechanized cavalry officers is a crucial lesson to examine. The experience of the commanders of the cavalry groups provided the first portion of a framework of intellectual capital by providing the necessary experience in terms of past doctrinal employment, interwar training, and assignment history. As a result, the men who went on to become cavalry group commanders had the experience and mental models that allowed them to transition their units from a failed doctrine to a successful operational approach. Second, the education, while focusing on doctrine and organizations that were approaching or were obsolete achieved a counter-intuitive effect by actually preparing the staff and commanders for the actual employment of their forces in non-doctrinal roles. Finally, the ability to gather and share lessons learned had the double benefit of assisting in preparing the soldiers and leaders training for combat at the Cavalry School and allowing for many to reflect on their experience and internalize those lessons while sharing them with the remainder of the U.S. Army. Together these elements joined together to complete the chain of doctrine, organization, and education and providing feedback into the analysis of lessons learned and future cavalry concepts.

CONCLUSION

Riding in the hatch of his tank, the regimental commander grinned like a schoolboy. The helmet and headphones he wore drowned out the roar of the tank's turbine engines, but the vibrations from the hull and wind in his face reminded him of the speed with which his regiment moved east. Leading a massive armored corps, his unit searched for the enemy's strategic reserve. Once located, his cavalrymen would prepare the way for the tanks and infantrymen following behind and then his regiment would be free to maneuver around the enemy, continue to the east, and trap the enemy's main body. Already this morning, his force comprised of reconnaissance and attack helicopters, cavalry fighting vehicles, heavy tanks, mortars, and field artillery were encountering enemy outposts and destroying them, all while searching for their main target.

While report after report flowed across the radio net, the situation to the front remained unclear. Perhaps he should switch to a command and control vehicle with his staff order to try to make more sense of what was ahead. No. He would remain in his tank for now, he and the staff were communicating on the radio and too much was still unknown, best to let the subordinate commanders continue. Suddenly the radio was full of traffic, reports of enemy formations unexpectedly close, and in the distance, false thunder as tank guns erupted. Within minutes, he had a clear picture of what had occurred. A low rise in the desert had hidden until the last minute an entire division of the enemy's reserve. Taking advantage of the shock and unpreparedness of the enemy, his cavalry squadrons struck energetically. Yet, they continued to search for the remaining elements of the enemy's force out of contact. Within an hour, his regiment had destroyed the unsuspecting division where it stood and had identified the remainder of the reserve to the north. Reporting this information to the corps commander, he could envision the great armored corps slowly shifting north to strike the remainder of the reserve. Meanwhile, his regiment would continue to observe and report on the enemy's forces while continuing to search

the desert. Searching for the critical information the corps would need for the next fight, before this fight was over.

Thus far, this paper has examined the World War II mechanized cavalry groups and their evolution in order to ascertain what the Army, at the end of World War II, believed was essential to conduct effective reconnaissance and security operations. The experiences gathered by the members of the European Theater Board provide important considerations that are relevant today for an Army exiting over a decade of war. Based on an analysis of the evolution and employment of the mechanized cavalry, the Army can learn many important lessons pertaining to the requirements for doctrine, organization, and the intellectual framework required to conduct effective reconnaissance and security operations.

The 2001 Quadrennial Defense Review and 2004 Army Transformation Roadmap transformed the U.S. Army into a modular force “able to create rapidly deployable and tailor able force capability packages” for the Joint Force Commander.¹⁴² Critical in this transformation was the development of redundant modular units specifically three standardized brigade combat teams and five standardized support brigades.¹⁴³ In regards to reconnaissance and security, this had three critical impacts on the corps and division commanders’ ability to conduct reconnaissance and security.¹⁴⁴ First, the U.S. Army eliminated the armored cavalry regiment, an organization dedicated to conducting reconnaissance, security, and economy of force operations at the corps

¹⁴²George A. Stewart III. “The Last Cavalry Regiment: The Corps Commanders Requirement for the 3rd ACR.” (Master’s Thesis, School of Advanced Military Studies, 2007) 3.

¹⁴³Department of the Army. *2004 Army Transformation Road Map*, at the Defense Technical Information Center, http://www.dtic.mil/futurejointwarfare/strategic/army_trans_roadmap.pdf (accessed October 28, 2012).

¹⁴⁴George A. Stewart III. “The Last Cavalry Regiment, 4.

level. Second, the division cavalry squadron, providing the same role for the division commander, met the same fate. Simultaneously with the departure of these organizations, each brigade combat team received its own unique and dedicated reconnaissance squadron. However, each of these organizations focused primarily on reconnaissance for the brigade commander, operate under a doctrine of stealthy reconnaissance and surveillance with a limited ability to conduct security operations.¹⁴⁵

To mitigate the loss of the armored cavalry regiments, the *2004 Army Transformation Roadmap* initially envisioned the reconnaissance, surveillance, and target acquisition brigade to synchronize all of the dedicated collection assets available and link to joint intelligence, surveillance, and reconnaissance capabilities for the corps commander.¹⁴⁶ Over the next eight years, with the synthesis of lessons learned in combat and simulation, this unit would repeatedly undergo changes in name, organization, mission, and doctrinal employment.¹⁴⁷ Organized to make sense out of complex and transparent aspects of the operational environment, the brigade has been renamed the battlefield surveillance brigade.

After more than ten years of combat experience with this arrangement, the U.S. Army acknowledges the need to again make important force design changes. *TRADOC Pam 525-3-0*: *The United States Army Capstone Concept* identifies a capability gap at echelons above brigade in regards to reconnaissance and surveillance. Principally, the U.S. Army requires an organization

¹⁴⁵ See Department of the Army, Field Manual 3-20.96, *Reconnaissance and Security Squadron* (Washington D.C.: Government Printing Office, 2010).

¹⁴⁶ Department of the Army, *2004 Army Transformation Road Map*, at the Defense Technical Information Center, http://www.dtic.mil/futurejointwarfare/strategic/army_trans_roadmap.pdf (accessed October 28, 2012).

¹⁴⁷ Andrew Fowler, interview by author, Leavenworth, KS, November 28, 2012.

at the corps and division level dedicated to answering information requirements and providing security over wide areas.¹⁴⁸ As of June 2012, the Army has begun to re-examine the lack of reconnaissance and security at the operational level and in October 2012, began to search for a brigade-sized solution to fill the void for reconnaissance and security at the operational level.¹⁴⁹

Today doctrine is more important than ever. It describes the current and near-term force, its capabilities, and the force's ability to apply those capabilities to accomplish missions in support of national objectives.¹⁵⁰ More importantly, the Army organizes and equips units based on it and in keeping with the word's original meaning; it serves as the basis for all soldier and leader training and education.¹⁵¹ As such, it is the key to understanding how Army forces prepare in peacetime and fight in war. It drives requirements—from equipment capabilities, to force structure and organization, to the training and education of soldiers, leaders, and their units.¹⁵² Distilled to its most basic level, it seeks to solve problems of the application of military force within a framework and language that educates and organizes combat forces within a distinct context.

Force designers developing future reconnaissance and security doctrine are witness to many parallels with the mechanized cavalry' doctrine writers of the past. First, interwar and

¹⁴⁸Department of the Army, Training and Doctrine Command Pamphlet 525-3-0, *The United States Army Capstone Concept*. (Washington D.C.: Government Printing Office, 2012) 20.

¹⁴⁹Andrew Fowler, interview by author, Leavenworth, KS, November 28, 2012.

¹⁵⁰Department of the Army, Training and Doctrine Command Pamphlet 71-20-3, *The United States Army Training and Doctrine Command Concept Development Guide*, (Washington D.C.: Government Printing Office, 2011), 6.

¹⁵¹Jay Luvaas, "Some Vagrant Thoughts on Doctrine," *Military Review*, March 1986, Volume LXVI – March Number 2, (Fort Leavenworth, KS: Combined Arms Center),

¹⁵²George F. Hoffman, *Through Mobility We Conquer*, 479.

World War II intellectual thought suffered in an environment that saw extensive bifurcation and conflicting ideologies develop at multiple levels. Because the War Department rarely enforced compliance of theory and individual branches pursued their own agendas, the branch schools failed to integrate with the needs and mission of the War Department.¹⁵³ As a result, doctrine became confused and disjointed with disastrous effects. Second, mechanized cavalry initially operated under a philosophy of stealth and avoiding combat. The expectations that mobile warfare enhanced by aerial reconnaissance and other intelligence collection methods proved false and required cavalry units to engage in combat. In essence, offense and defense became enabling operations for reconnaissance and security.¹⁵⁴ Finally, the utility of a mobile, well-armed, independent combat force available at the division, corps, and army level proved essential in enabling those commanders to understand the enemy situation.¹⁵⁵

The similarities between mechanized cavalry and current reconnaissance and security doctrine are numerous. First, at the operational level, the Army lacks a unified methodology or plan to define or explain how it performs or supports information collection, a comprehensive term that includes reconnaissance, security, surveillance, and military intelligence operations.¹⁵⁶ Instead, commanders synchronize and integrate these four tasks as if they are discrete activities, sensors, or assets with a convoluted and confusing group of publications. More over these

¹⁵³Walter E. Kretchik, *U.S. Army Doctrine*, 147.

¹⁵⁴Department of the Army, Field Manual 17-35, *Reconnaissance Battalion, Armored Division* (Washington D.C.: Government Printing Officer, 1951), 3.

¹⁵⁵U.S. Forces, European Theater Study No. 49, 20.

¹⁵⁶Department of the Army, Field Manual 3-55, *Information Collection* (Washington D.C.: Government Printing Office, 2012). Information collection originally replaced the briefly rescinded term intelligence, surveillance, and reconnaissance. The four missions included under information collection were reconnaissance, security, surveillance, and intelligence operations.

documents are rampant with incongruities, contradictions and often focus on branch specific policies and goals.¹⁵⁷ Second, reconnaissance and security once again highlight execution utilizing stealth and high technology sensors to accomplish the mission.¹⁵⁸ This mentality continues to grow despite recognition by Training and Doctrine Command and contemporary writers who anticipate that future threats will improve capabilities, reduce the effectiveness of technologically assisted detection, and simultaneously improve lethality and the ability of threat forces to remain undetected.¹⁵⁹ Finally, brigade combat team, division, and corps commanders primarily use their assigned or attached reconnaissance elements to conduct reconnaissance operations.¹⁶⁰ While this statement mirrors one of the critical lessons of the mechanized cavalry European Theater Board, that cavalry be assigned to corps and divisions in order to conduct reconnaissance and security, there is one critical problem. There is distinct lack of a highly

¹⁵⁷For example, despite having multiple tactical organizations dedicated to conduct reconnaissance, Army Doctrinal Reference Publication 1-02: *Operational Terms and Graphics*, omits a definition for reconnaissance. Instead Army Doctrinal Reference Publication 3-90: *Offense and Defense*, provides the answer for reconnaissance, but adds special reconnaissance, a term also lacking in Army Doctrinal Reference Publication 1-02: *Operational Terms and Graphics*. Additionally, it only identifies screen, guard, and cover with security operations vice Army Doctrinal Reference Publication 3-90: *Offense and Defense* and Field Manual 3-55: *Information Collection*, which adds area and local security. While FM 3-55: *Information Collection*, articulates many of the key definitions, the main purpose of the manual is to articulate the acquisition of information and the provision of this information to processing elements.

¹⁵⁸See Department of the Army, Field Manual 3-20.96, *Reconnaissance and Security Squadron* (Washington D.C.: Government Printing Office, 2010).

¹⁵⁹See Department of the Army, Training and Doctrine Command Pamphlet 525-3-0, *Army Capstone Concept* (Washington D.C.: Government Printing Office, 2009); Department of the Army, Training and Doctrine Command Pamphlet 525-3-0, *Army Capstone Concept*, (Washington D.C.: Government Printing Office, 2012); and Paul K. Davis and Peter A. Wilson, “Looming Discontinuities in U.S. Military Strategy and Defense Planning: Colliding RMAs Necessitate a New Strategy.” RAND Occasional Paper, 2011.

¹⁶⁰Department of the Army, Army Doctrinal Reference Publication 3-90, *Offense and Defense* (Washington D.C.: Government Printing Office, 2012), 5-1.

mobile, heavily armed, and lightly equipped force in doctrine or organization for the corps or division to conduct reconnaissance and security.

A unit's organizational makeup depends on the required capabilities and means of employment identified in doctrine. The mechanized cavalry General Board determined three distinct requirements in terms of cavalry organization. First, that an agile, highly mobile, heavily armed, and lightly equipped force was necessary to conduct reconnaissance and surveillance. However, this force must remain lean and minimize the addition of excessive personnel and equipment. Second, it recognized the need for a truly combined arms organization, roughly brigade-sized to support corps level operations. The combined arms nature of this organization was not to increase its close combat potential, thereby making it available as an additional maneuver unit, but instead to allow it to successfully penetrate the enemy's counter reconnaissance efforts and determine the enemy's intentions. Finally, the availability of a smaller, similarly organized, and specialized force would provide the necessary capabilities required to answer commander's information requirements at the division level as well.¹⁶¹

In contrast, the corps and division commanders today have two options, one specialized and one general, to conduct reconnaissance and security. Both division and corps commanders can utilize the battlefield surveillance brigade, a modular unit that provides division and higher-level commanders with surveillance, light mobile reconnaissance, and technical military intelligence capabilities. However, its primary purpose is to avoid contact and utilize small elements to reinforce theater and strategic intelligence collection assets. While it can support both wide area security and combined arms maneuver, it is overly specialized towards identifying and

¹⁶¹U.S. Forces, European Theater Study No. 49, 20-22.

locating irregular forces.¹⁶² Additionally, it is severely handicapped by a lack of dismounted soldiers, direct fire weapons, artillery, and sustainment capability to conduct even limited security operations unless under specific constraints. In writing, general purpose brigade combat teams can fill a security role for divisions or corps when required. However, there is a distinct cultural bias to return fire, close with, and destroy the enemy instead of locating, reporting, and developing the situation. Additionally, in general terms brigade combat teams lack the correct mix of speed, agility, and firepower to conduct reconnaissance and surveillance¹⁶³.

In developing the leaders of World War II reconnaissance and security operations experience, education, and the sharing of experiences contributed to create a strong intellectual framework. The assignment history of cavalry officers proved to be the most critical aspect of this as the exercises and experiences before the war combined to create leaders that were effective, skilled, and adaptable. While education and the sharing of lessons continues today, the lack of specialization serves as a hindrance to today's officers. In order to improve the promotion and command opportunities, armor officers transition through combined arms battalions, reconnaissance squadrons, and Stryker battalions, becoming jacks of all trades vice specialized practitioners of distinctive types of warfare. A few exceptions apply with officers returning to cavalry units repeatedly in their careers but this is generally frowned upon and exceedingly unlikely.¹⁶⁴

¹⁶²Department of the Army, Field Manual 3-55.1, *Battlefield Surveillance Brigade* (Washington D.C.: Government Printing Office, 2010), 2-1 – 2-2.

¹⁶³Department of the Army, Army Doctrinal Reference Publication 3-90, *Offense and Defense*, 5-4.

¹⁶⁴Armor Branch Newsletter, Volume 1, Issue, Winter 2012.

Twelve years later, a tired division commander smashed his hand into the computer screen wedged tightly into the turret with him in frustration. He was blind. Not physically, but he had no idea of what was going on around him in the massive dust storm enveloping his division. Somewhere to the north an enemy armored formation moved south, in the near by towns irregulars and guerillas prowled the streets and struck at his support units. His brigade reconnaissance squadrons and subordinate battalion scout platoons, intended to utilize high-technology optics to target the enemy from afar, were inside of his formation. Their unarmored vehicles and light machine guns had proven inadequate to stand-up to the enemy. His mighty intelligence network had been unable to disseminate the massive amount of information gained by national and theater assets once his forces had began to move. His operations officer in search of a way to solve the problem was on the radio with the corps requesting intelligence. However, the corps, while not nearly as blind, lacked clarity and promised additional reconnaissance assets would be in the air as soon as the weather broke. The commander remembered his time as a platoon leader in the regimental cavalry not far from this very spot and thought, I do not need reconnaissance, I need cavalry.

Today the Army needs cavalry at corps and division level. The following recommendations do not intended to resurrect the armored cavalry regiment or reestablish cavalry as a branch. The armored cavalry regiment, while exceedingly capable, existed to provide a specific capability against a specific threat. It existed to conduct reconnaissance, security, and economy of force operations against massive armored formations. Instead, the remainder of this paper focus on developing a set of capabilities centered on a highly mobile, heavily armed, and lightly equipped force capable of fighting offensively or defensively while providing critical information to corps and division commanders. The intent is to provide a vision of the characteristics of the threat cavalry forces will face and then offer recommendations on the future

of reconnaissance and surveillance in terms of doctrine, organization, and developing leaders with the appropriate skills.

Cavalry of the future will confront a diverse group of threats ranging from state and non-state actors to insurgents and criminals. These adversaries will employ a combination of regular and irregular tactics with greater technological sophistication than in the past. As a result, the previous technological dominance and overmatch of the Army will dissipate. Items like precision weapons, anti-satellite weapons, global positioning system jammers, and technologically advanced decoys will increase fog and friction on the future battlefield. Acting off the experiences of the Army in Iraq and Afghanistan, future threats will often operate among the population in an attempt to further mitigate the effects of American precision weapons, sensors, and robotics.¹⁶⁵ Finally, cavalry must possess the ability to rapidly deploy into denied theaters.

In order to accomplish this the Army must define what cavalry is, what it will do, and clarify doctrine. Cavalry is a highly, mobile, heavily armed, and lightly equipped force that conducts reconnaissance and security for the supported commander. It answers intelligence requirements and is prepared to conduct offensive and defensive operations to collect information or protect the main body. Its primary purposes are to collect information and provide the commander with time to take action on the information gained. Foremost however, reconnaissance and security doctrine requires clarification. In addition to correcting errors and inconsistencies, the concept of information collection, which includes reconnaissance, security, surveillance, and intelligence operations, requires expansion from a process of synchronizing and integrating sensors and assets to a fully formed theory of action at the operational level. Finally, doctrine must internalize that reconnaissance by stealth or technology alone is doomed to failure,

¹⁶⁵Department of the Army, Training and Doctrine Command Pamphlet 525-3-0, *Army Capstone Concept*, 6-9.

that security and reconnaissance are handmaidens, and that both require a unit capable of more than just surviving first contact.

Achieving the correct capabilities within cavalry units is essential. The Army requires cavalry units capable of not only reconnaissance and security but also conducting all elements of information collection. Therefore, simply duplicating the armored cavalry regiments and division cavalry squadrons of yesterday is impractical and unrealistic. In an age of fiscal restraint, evolving threats, and changing priorities, achieving the correct force structure in line with doctrinal capabilities is crucial. As the Army seeks to reorganize, it should reorganize three brigades to serve as dedicated reconnaissance and security units in support of corps and divisions. These brigade organized around squadrons capable of conducting independent operations require combined arms down to the troop level, rapidly deployable and survivable equipment, and an organization sufficient to conduct self-sustained, long term operations, with little external support.

Reconnaissance and surveillance brigades require a combined arms organization down to the squadron and troop level. Embedding a combined arms approach across the brigade enhances the ability to dominate whether operating in combined arms maneuver or wide area security. Incorporating reconnaissance, infantry, armor, military intelligence, engineer, and chemical, biological, radiological, and nuclear units will provide the capabilities necessary to operate in the contemporary operating environment. Of these, the inclusion of multi-functional intelligence collection teams capable of gathering human and signal intelligence at the reconnaissance platoon level are critical to answering commander's critical information requirements in the urban and complex environments. Including an infantry "dragoon" company, a sapper engineer platoon and a chemical, biological, radiological, and nuclear reconnaissance platoon at squadron-level in addition to multi-functional intelligence collection platoons in reconnaissance and security troops will achieve the desired results. However, the brigade must minimize special-purpose elements

not essential or a desire to create branch specific companies or battalion headquarters to provide training and administrative oversight over the specialized platoon or company-sized units. The proper training and management of officers and Soldiers serving in the reconnaissance and surveillance brigades will mitigate the risks of negating larger branch specific headquarters for this purpose, a point that will be addressed below.

Equipping a reconnaissance and surveillance brigade is a balance between maintaining speed, range, and survivability on one hand and the ability to rapidly deploy a self-sustaining unit on the other. As the Department of Defense focuses on anti-area denial and access scenarios, it is incumbent on the Army to ensure that it can rapidly deploy forces to crisis locations worldwide. Therefore, a brigade comprised of heavy armored vehicles will lack the deployability and responsiveness corps and division commanders require. Conversely, equipping an organization with the typical contemporary reconnaissance platforms of the M1025 high-mobility multi-wheeled vehicle or the M1114 up-armored high-mobility multi-wheeled vehicle lack the survivability, firepower, and sensor suites required for the type of aggressive reconnaissance and security operations discussed in this paper. Finally, due to the extended period of reduced funding and fiscal constraint that the Army faces, acquiring an altogether new family of vehicles within a constrained timeline is improbable. Based on these considerations, the best fit for a modern reconnaissance and security brigade is the Stryker family of vehicles, with two caveats. First, this would serve as an interim solution pending the development of a more robust and specialized platform. Second, in addition to the existing M1127 reconnaissance variant, a variant equipped with at least a 25-mm. cannon, similar to the Marine Corps' LAV-25, and the M1128 mobile gun system are required at the troop-level to ensure the proper mix of sensors, firepower, and survivability.

Finally, in order to ensure that the proper intellectual framework is cultivated and cherished, the organization of a regimental headquarters to facilitate training, standardization, and

develop quality cavalry leaders is critical. Due to the high-cost and limited availability of specialized training, like the reconnaissance and surveillance leaders course and military free-fall for long-range surveillance Soldiers and the requirement to inculcate leaders with a priority of answering commander's critical information requirements managing the careers of the three reconnaissance and security brigade cavalrymen is critical. Utilizing a small and simple headquarters to govern the assignments of officers and non-commissioned officers within the brigades and facilitate training and certification will not only save money in the long run for the Army, but also ensure proper leader training and education. Second, placing a regimental headquarter in command of the units will provide standardization in policies, techniques, and procedures. Finally, as cavalry is not a branch, but a way of life, including the various branches that would operate within these units would further assist in development and professionalization.

After a decade of war, the Army has recognized the need for a specialized reconnaissance and surveillance unit operating in support of corps and division commanders. In developing such a unit, the experiences of the mechanized cavalry leading up to and in World War II provide insightful concepts. Combat proved the need for a clear, articulate, and realistic doctrine combined with a well-led combined arms unit that utilized offensive and defensive maneuver in support of reconnaissance and surveillance. While much has changed since the mechanized cavalry fought across Western Europe, the recommendations and experiences of those cavalrymen and their Soldiers continue to contribute to the next generation.

BIBLIOGRAPHY

Books

Bourque, Stephen A. *Jayhawk! The VII Corps in the Persian Gulf War*. Washington, D.C.: The Center for Military History, 2002

_____. and John W. Burdan. *The Road to Safwan: The 1st Squadron, 4th Cavalry in the 1991 Persian Gulf War*. Denton, TX: University of North Texas Press, 2007.

Cameron, Robert S. *Mobility, Shock and Firepower: The Emergence of the U.S. Army's Armor Branch, 1917-1945*. Washington, D.C.: Center for Military History, 2008.

Clausewitz, Carl Von. *On War*. Trans and Ed. Michael Howard and Peter Paret. *Princeton, NJ: Princeton University Press, 1976*.

Cole, Hugh M. *The Lorraine Campaign*. U.S. Army in World War II. Washington, D.C.: Center for Military History, 1981. Originally published in 1950.

Corum, James S. *The Roots of Blitzkrieg*. Lawrence, KS: University Press of Kansas, 1992.

Denison, George T. *A History of Cavalry from the Earliest Times: With Lessons for the Future*. London: Macmillian and Company, 1913.

Greenfield, Kent Roberts. *The Organization of Ground Combat Troops*. Washington, D.C.: Office of the Chief of Military History, U.S. Army, 1947.

Haynes, George L. Jr and James C. Williams. *The Eleventh Cavalry From the Roer to the Elbe, 1944-1945*. Erlangen, Germany: 11th Cavalry Group, 1945.

Henry, Robert S. *First with the Most: Forrest*. New York: Mallard Press, 1974.

Herr, John K. and Edward S. Wallace. *The Story of the U.S. Cavalry: 1775 – 1942*. Boston: Little, Brown, and Company, 1953.

Hoffman, George F. *Through Mobility We Conquer: The Mechanization of the U.S. Cavalry*. Lexington, KY: University of Kentucky Press, 2006.

House, Jonathan M., CPT. *Toward Combined Arms Warfare: A Survey of 20th-Century Tactics, Doctrine, and Organization*. Research Survey Number 2. Fort Leavenworth, KS: Combat Studies Institute Press, 1984.

Howe, George F., *Northwest Africa: Seizing the Initiative in the West*. Washington D.C.: Center of Military History, 1993.

Jarymowycz, Roman. *Cavalry From Hoof to Track*. Westport, CT: Praeger Security International, 2008.

Kretchik, Walter E. *U.S. Army Doctrine: From the American Revolution to the War on Terror*. Lawrence, KS: University Press of Kansas, 2011.

Longacre, Edward. *Lincoln's Cavalrymen: A History of the Mounted Forces of the Army of the Potomac*. Mechanicsburg, PA: Stackpole Books, 2000.

McGrath, John J. *Scouts Out!: The Development of Reconnaissance Units in Modern Armies*. Fort Leavenworth, KS: Combat Studies Institute Press, 2008.

Murray, Williamson and Allan R. Millet. *Military Innovation in the Interwar Period*. New York: Cambridge University Press, 2008.

Nenninger, Tim. *A Brief Account of the Evolution of the Regular Course at the United States Army Command and General Staff College*. Fort Leavenworth, KS: Command and General Staff College, 1988.

Schaefer, James A. *The Tactical and Strategic Evolution of Cavalry during the American Civil War*. Toledo: The University of Toledo, 1982.

Stanton, Shelby L. *Order of Battle, The U.S. Army, World War II*. Novato, CA: Presidio Press, 1984.

Starry, Don A. "Introductory Essay" in *Through Mobility We Conquer: The Mechanization of the United States Cavalry*. George F. Hoffman. Lexington, KY: University Press of Kentucky, 2006.

_____. Introduction Essay in *From Hoof to Track*. Jarymowycz, Roman. *Cavalry From Hoof to Track*. Westport, CT: Praeger Security International, 2008.

U.S. Cavalry Association. *We Remember: U.S. Cavalry Association*. New York: Tuner, 1996.

Weigley, Russell F. *Eisenhower's Lieutenants: The Campaign of France and Germany, 1944-1945*. Bloomington, IN: Indiana University Press, 1981.

Wright, Robert. *The Continental Army*. Washington D.C.: Center of Military History, 1983.

Articles

Candler, Larry W. "91st Reconnaissance Squadron in Tunisia – A Detailed Study." *Modern Reconnaissance: A Collection of Articles from the Cavalry Journal*. Special Issue, 1944.

Cavallaro, Gina and Kris Osborn. "Army to Switch Two Heavy Brigades to Strykers." *Army Times*, October 3, 2009.

Davis, Paul K. and Peter A. Wilson. "Looming Discontinuities in U.S. Military Strategy and Defense Planning: Colliding RMASSs Necessitate a New Strategy." RAND Occasional Paper, 2011.

Kromer, Leon B. Address of Major General Leon B. Kromer, Chief of Cavalry, at Fort Riley Kansas, during the April-May Maneuvers. *Cavalry Journal*, vol. 24. May-June. 1934.

Luvas, Jay. "Some Vagrant Thoughts on Doctrine." *Military Review*." Vol. LXVI, No. 2, 1986.

Orbis, Johnson-Freese. "The Reform of Military Education: Twenty-Five Years Later." *A Journal of World Affairs* 56. No. 1, Winter 2012.

Whitehairm Jay C. "Reconnaissance – Sine Qua Non." *Military Review*, Vol. 23, No. 7, 1943.

Unpublished Dissertations, Theses, and Papers

DiMarco, Louis A. 1995. *The U.S. Army's Mechanized Cavalry Doctrine in World War II*. Master of Military Art and Science Theses Collection. Fort Leavenworth: Command & General Staff College.

Morton, Matthew D. 2004. *Men on "Iron Ponies": The Death and Rebirth of the Modern U.S. Cavalry*. Master's Thesis, Florida State University.

Nance, William S. 2011. *Patton's Iron Cavalry: The Impact of the Mechanized Cavalry on the U.S. Third Army*. Masters of Arts Theses Collection, University of North Texas.

Nowowiejski, Dean A. 1994. *Adaption to Change: U.S. Army Cavalry Doctrine and Mechanization, 1938-1945*. School of Advanced Military Studies Monographs. Fort Leavenworth, KS: U.S. Army Command & General Staff College.

Prigge, Christopher N. *Exploiting Combat Experience: The U.S. Forces European Theater Study of Mechanized Cavalry Units*. School of Advanced Military Studies Monographs. Fort Leavenworth, KS: U.S. Army Command & General Staff College.

Stewart, George A. III. *The Last Cavalry Regiment: The Corps Commanders Requirement for the 3rd Armored Cavalry Regiment*. 2007.

Government Documents

81st Reconnaissance Squadron. After Action Review, 31 January 1943 thru 31 December 1944.

82nd Armored Reconnaissance Battalion. After Action Review, June 1944 thru May 1945

Armored School. *ONTOS in the Reconnaissance Platoon: A Research Report Prepared by Committee 19 of the Armor Officer Advanced Course*. Fort Knox, KY: Armored School, 1953.

Cavalry School. *Cavalry Reconnaissance Number One: Operations of the 81st Armored Reconnaissance battalion in Tunisia*. Fort Riley, Kansas: Cavalry School, 1943.

_____. *Cavalry Reconnaissance Number Four: Operations of a Reconnaissance Company in Tunisia*. Fort Riley, Kansas: Cavalry School, 1943.

_____. *Cavalry Reconnaissance Number Seven: Operations of the 91st Cavalry Reconnaissance Squadron (Mechanized) from Mateur to Bizetere*. Fort Riley, Kansas: Cavalry School, 1943.

Department of the Army. *2004 Army Transformation Road Map*. Washington D.C.: Government Printing Office. 2004.

_____. Army Doctrinal Reference Publication 1-02: *Operational Terms and Graphics*. Washington D.C.: Government Printing Office, 2012.

_____. Army Doctrinal Reference Publication 3-90: *Offense and Defense*. Washington D.C.: Government Printing Office, 2012.

How the Army Runs: A Senior Leader Reference Handbook, 2011-2012. Carlisle, PA: U.S. Army War College, 2011.

_____. *How the Army Runs: A Senior Leader Reference Handbook, 2011-2012*. Carlisle, PA: U.S. Army War College, 2011.

_____. Department of the Army Pamphlet 600-3, *Commissioned Officer Professional Development and Career Management*. Washington D.C.: Government Printing Office, 2010.

_____. Training and Doctrine Command Pamphlet 525-3-0, *The United States Army Capstone Concept*. Washington D.C.: Government Printing Office, 2009.

_____. Training and Doctrine Command Pamphlet 525-3-0, *The United States Army Capstone Concept*. Washington D.C.: Government Printing Office, 2012.

_____. Training and Doctrine Command Pamphlet 525-66, *Force Operating Capabilities*. Washington D.C.: Government Printing Office, 2008.

_____. Training and Doctrine Command Pamphlet 71-20-3, *The United States Army Training and Doctrine Command Concept Development Guide*. Washington D.C.: Government Printing Office, 2011.

_____. Field Manual 6-22, *Army Leadership: Competent, Confident, and Agile*. Washington D.C.: Government Printing Office, 2006.

_____. Field Manual 3-20.96, *Reconnaissance and Security Squadron*. Washington D.C.: Government Printing Office, 2010.

_____. Field Manual 3-55, *Information Collection*. Washington D.C.: Government Printing Office, 2012.

_____. Field Manual 3-55.1, *Battlefield Surveillance Brigade*. Washington D.C.: Government Printing Office, 2010.

_____. Field Manual 17-35, *Reconnaissance Battalion, Armored Division*. Washington D.C.: Government Printing Office, 1951.

Headquarters IV Corps. *Final Report Third Army Maneuvers*. 1940.

Headquarters Third Army. *Third Army Maneuvers, Sabine Area*. 1940

U.S. Army Cavalry School. Field Manual 2-10, *Cavalry Field Manual*, Volume I. Fort Riley, KS: U.S. Army Cavalry School, 1938.

_____. Field Manual 2-10, Cavalry Field Manual, Volume II. Fort Riley, KS: U.S. Army Cavalry School, 1938.

_____. Field Manual 2-10, Cavalry Field Manual, Volume III Fort Riley, KS: U.S. Army Cavalry School, 1938.

U.S. Forces. European Theater, "The General Board, Study No. 49: Tactics, Employment, Technique, Organization, and Equipment of Mechanized Cavalry Units", 1945.

War Department. *A Manual for Commanders of Large Units (Provisional)*. Washington D.C.: Government Printing Officer, 1930.

_____. *Field Service Regulations*, 1923. Washington D.C: Government Printing Office, 1924.

_____. Field Manual 2-15, Cavalry Field Manual. *Employment of Cavalry*. Washington D.C.: Government Printing Office, 1941.

_____. Field Manual 2-20, *Cavalry Reconnaissance Troop Mechanized*. Washington D.C.: Government Printing Office, 1944.

_____. Field Manual 2-30, Cavalry Field Manual. *Cavalry Mechanized Reconnaissance Squadron*. Washington D.C.: Government Printing Officer Riley, 1943.

_____. *Field Service Regulations Field Manual 100-5: Operations*. Washington D.C.: Government Printing Office, 1941.

_____. *Field Service Regulations Field Manual 100-5: Operations*. Washington D.C.: Government Printing Office, 1944.

_____. TC 107, *Employment of Mechanized Cavalry Units*. Washington, D.C., 21 September 1943.

_____. T/O 2-51, *Cavalry Regiment, Horse and Mechanized*. Washington, D.C., 1 May 1940.

_____. T/O&E 2-22, *Headquarters and Headquarters Troop, Cavalry Group, Mechanized*. Washington, D.C., 13 October 1943.

_____. T/O&E 2-25, *Cavalry Reconnaissance Squadron, Mechanized*. Washington, D.C., 15 September 1943.

_____. T/O&E 2-26, *Headquarters and Headquarters and Service Troop, Cavalry Reconnaissance Squadron, Mechanized*. Washington, D.C., 15 September 1943.

_____. T/O&E 2-27, *Cavalry Reconnaissance Troop, Mechanized*. Washington, D.C., 1 March 1943.

_____. T/O&E 17-35, *Armored Reconnaissance Battalion*. Washington, D.C., 1942.

Lectures

Chaffee, Adna R. "Mechanized Cavalry". Lecture, Army War College, Washington D.C. September 29, 1939.

Eltinge, Leory. "Notes of Cavalry." Lecture, Fort Leavenworth, KS, February 14, 1917.

Webpages

U.S. Army Center of Military History. Kasserine Pass Battles: Staff Ride Background Materials. <http://www.history.army.mil/books/Staff-Rides/kasserine/kasserine.htm> (accessed March 15, 2013).

Department of the Army. *2004 Army Transformation Road Map*, at the Defense Technical Information Center, http://www.dtic.mil/futurejointwarfare/strategic/army_trans_roadmap.pdf (accessed October 28, 2012).